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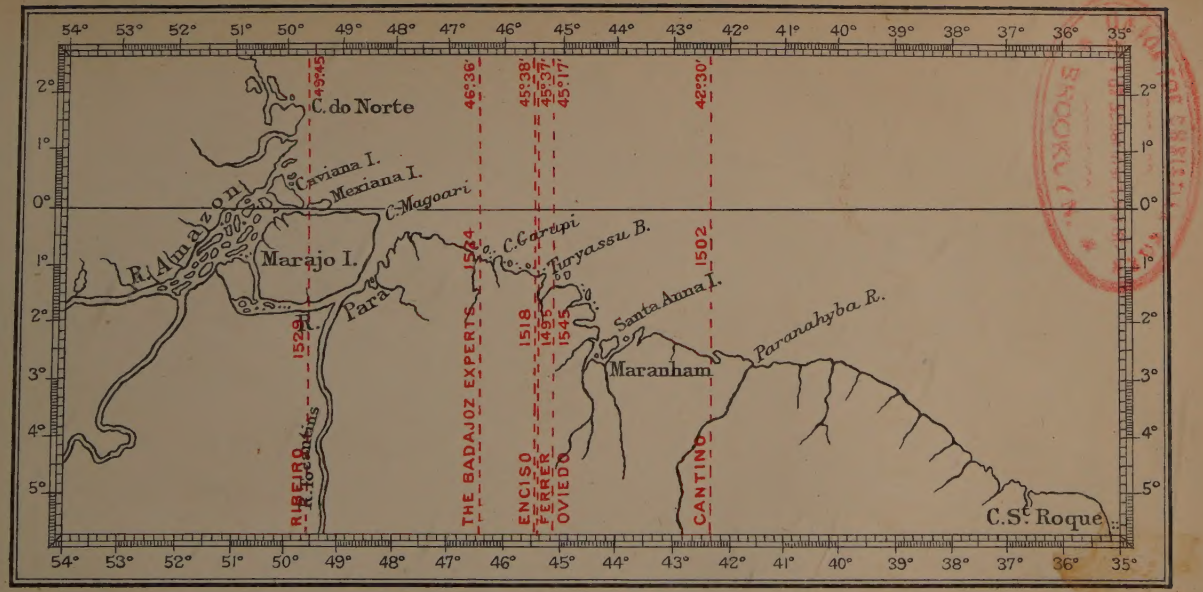

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The Line of Demarcation, as fixed by the Treaty of Tordesillas (1494), according to Ferrer (1495), Cantino (1502), Enciso (1518), the Badajoz Experts (1524), Ribeiro (1529), and the Sevillian Cartographers (*usque* 1550), and Oviedo (1545). Transferred on an English Admiralty Chart.

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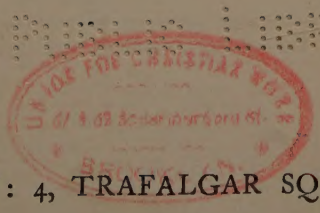
THE DIPLOMATIC HISTORY OF AMERICA

ITS FIRST CHAPTER

1452—1493—1494

BY

HENRY HARRISSE



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TO

COLONEL JOHN HAY

AMBASSADOR OF THE UNITED STATES

TO ENGLAND

A DIPLOMATIST AND FRIEND OF

THIRTY YEARS' STANDING

THIS WORK IS CORDIALLY DEDICATED

BY

THE AUTHOR

23317

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The Diplomatic History of America

I.

THE PAPAL GRANTS TO PORTUGAL. 1452—1484.

When Christopher Columbus first returned to Europe after discovering America, stress of weather compelled him to seek shelter in Portugal. On March 4, 1493, he cast anchor at the mouth of the Tagus. Having asked João II. leave to ascend the river as far as Lisbon, the king, in reply, invited him to repair to the Court. The interview took place at Valparaiso, March 9, in the evening, immediately upon his arrival.

After Columbus had related to the king the object and results of his transatlantic voyage, His Majesty told him that in consequence of the treaty which he had concluded [1] with the sovereigns of Spain, the discovery embraced countries which belonged to Portugal.[2]

The treaty referred to is evidently that negotiated by Isabella of Castille at Alcantara with Beatrice of Portugal, the latter acting in the name of Alfonso V., and which was signed at Evora, September 8, 1479.[3]

This agreement did not warrant the inferences drawn from it by João II. As to historians, they have been led into error by Ruy de Pina, a celebrated Portuguese chronicler of the close of the fifteenth century, whom they all copy servilely. According to the statements of Pina, Alfonso V., besides the possession of the Portuguese islands in the Atlantic Ocean, possessed, *by virtue of that treaty*, the exclusive right of making discoveries and conquests in the regions

extending at the south, from Capes Noun and Bojador to the [countries of the] Indians inclusively, including all the adjacent seas, isles and coasts discovered and to be discovered.[4]

If such had actually been the tenor of the Treaty of 1479, and considering the vague idea which people then had of the geography of the "adjacent seas," and the countries of the "Indians," the claims of Portugal might perhaps have exhibited a show of right. But such was not the case. This agreement, according to the authentic text, which we borrow from a manuscript of the close of the fifteenth century, grants in that respect to Portugal only the sovereignty of the Oceanic islands then possessed by that kingdom, together with the sovereignty of the islands which the Portuguese might discover and acquire within the limits of the said possessions: "emos ditos termos."[5] In other words, this prospective sovereignty was to be exercised only in the vicinity of the Azores,

Cape Verde Islands and Guinea. Nowhere in the treaty is to be found any reference to parts extending "atée os Indios" (as far as the Indians). And if "islands, coasts, and adjacent seas" are mentioned, the expression is meant to apply exclusively to the islands, coasts and seas which Portugal might discover in the Atlantico-African regions.

Ruy de Pina says that João II. asked and obtained from Pope Sixtus IV. the confirmation of that clause of the treaty, —which assertion is exact. We find this confirmation in the Bull of June 21, 1481, but in the very terms of the Treaty of 1479; that is, without the words: "atée os Indios." And if we actually read in said Bull: "mare ipsum usque ad Indos" (seas as far as the Indians),[6] it is only as regards spiritual jurisdiction over those regions, granted, for the first time, by that Bull of 1481, two years after the treaty, to the Lusitanian Order of Christ. The mistake committed by Pina may have originated by confusing

the tenor of the Bull with that of the treaty, as well as by an erroneous interpretation of a single word in the Latin text. Where we read "emos ditos termos," the Bull says: "ultrà in dictis terminis," and the word *ultrà* was interpreted by Pina and others, in the sense of *beyond*, whilst in reality it has no other meaning here than that of *hereafter*.

In reply Columbus stated to João II. that he had not seen the treaty; that he only knew of the order of his sovereigns to steer clear of The Mine[7] and of the whole of Guinea, and that Their Highnesses had caused the said order to be made known in all the ports of Andalusia before he set out on his voyage of discovery.[8]

The countries designated in that order, and the reply of Columbus, show that in Spain importance was given not so much to the treaty as to the restrictions tacitly contained in certain papal Bulls, which we shall now proceed to examine.

The first Bull of that kind is one by

Nicholas V., dated June 18, 1452, which authorizes Alfonso to attack and subjugate all the countries of infidels, to reduce all their inhabitants to slavery, and to seize all their property.[9] Here no limits are mentioned ; the authorization applies to the countries inhabited by infidels, anywhere in the world, and the authorization is not granted exclusively to the Portuguese king, although no reference is made therein to other Christian sovereigns.

Another Bull from the same pope is dated January 8, 1454. In reply to the intention expressed by Prince Henry of Portugal to discover a route at the south and east as far as the countries of the Indians, Nicholas V. grants to Alfonso V. all the regions discovered and to be discovered south of Capes Bojador and Noun, towards Guinea, and all those which are "on the south coast and on the east side."[10]

An expression, which again requires to be noted, is "usque ad Indos" (as far

as the Indians). As in this Bull mention is made of the south and east of Africa, we must infer that so early as 1454, that is to say, more than thirty years before the expedition of Bartholomew Diaz, the Portuguese already entertained the project of rounding the African continent at the south, and of reaching by that route what they called the regions of India. Everything, we must confess, was calculated to prompt the desire. Not only was there a current belief dating from the highest antiquity that such a feat could be accomplished, but its practicability was made clear by the old planispheres; such, for instance, as Marin Sanuto's, 1306, the Medicean, 1351, the one in the Biblioteca Palatina, etc., all of which were soon to be confirmed in that respect by the delineation of the "Capo di Diab" in the famous mappamundi of Fra Mauro (1457—1459).[11]

A third Bull is the already mentioned one of Sixtus IV., of June 21, 1481,

whereby he concedes to the Order of Christ spiritual jurisdiction over all the countries conquered or to be conquered south of Cape Bojador as far as the [countries of the] Indians. This Bull reproduces literally, as regards the regions conceded, the terms of the Bull of Nicholas V., of January 8, 1454.[12]

The series terminates with the Bull of Innocentius VIII., of September 12, 1484, which is another confirmation of the Bulls above mentioned, all of which contain the expression which seems to have been the point of dispute, viz.: "usque ad Indos" (as far as the Indians).

In reality, Columbus only claimed to have landed in India; since his letter to Ferdinand and Isabella apprising them of the success of his expedition states that "in thirty-three days he had reached the Indies."[13] The Latin version of this letter, which was made at the time, even specifies the region discovered as being "the islands of India beyond the Ganges."[14]

It must be stated, however, that the word "Indies" was then a geographical expression extremely vague, for the Spaniards as well as for the Portuguese and Italians. It seems to have been in their eyes the entire region extending from the east coast of Africa to China and Japan.[15] But in the present instance Portugal should have taken into account that the papal grants covered only the countries to be discovered by her navigators in an area extending from the western African coast towards the south, and as far as the shores of the adjoining seas eastwards: "Occeanum Mare meridionalis et orientales plagas;" whilst Columbus had accomplished his discoveries exclusively on the opposite side of the world. This fact could not escape the attention of the cosmographers of the Crown of Portugal. We must infer, therefore, that João II. considered himself as possessing, by virtue of those Bulls, exclusive rights over that immense portion of the globe stretching from

Guinea to the southern extremity of the coast of Africa, and thence eastwards to the most remote parts of India. It also follows that in his opinion, the memorable deed of Christopher Columbus consisted only in having visited those countries by a new route. Hence the demands, more or less justifiable, of that king.

II.

SPAIN ASKS THE POPE FOR A GRANT OF THE NEWLY-DISCOVERED REGIONS. 1493.

COLUMBUS landed at Palos in the afternoon of Friday, March 15, 1493. He apparently remained in the place two weeks, since his arrival at Seville is recorded only on March 31,[16] on Palm Sunday. It was there that he received from the Catholic Sovereigns a letter bidding him come to Barcelona.

We do not know exactly when he arrived at the court. Las Casas,[17] doubtless copying the "Historie" of Fernando Columbus,[18] says that it was in the middle of April. It was rather, in our opinion, towards the end of the month; for the invitation required at least a

week to come from Barcelona to Seville, and Columbus, in his turn, was obliged to cross over nearly the entire peninsula, slowly, on account of the six or seven Indians who went with him and whom he was obliged to exhibit to the crowds which thronged all along the route.)

If we are to believe Fernando Columbus,[19] it was his father who advised Ferdinand and Isabella to appeal to the Pope for the adjustment of the difficulties just raised by Portugal on account of his discovery of the New World. This is another inexact statement of the "Historie."

The mode employed by Columbus, when he reached Europe, to convey the great news to the Spanish sovereigns is yet surrounded with mystery. We must believe, however, that between March 4 and 12, he sent to them from the Rastello, in the Tagus, by the land route (Elvas, Toledo, Tortosa, etc.) a written account of his discovery, and that without waiting for his arrival in Barcelona

they despatched at once a courier to Rome, bearing the news for the Pope, and letters for their resident ambassadors there, Bernardin de Carvajal and Ruiz de Medina.

The news, however, was already known, not through mere rumours, but actually by written communications, first at Florence by the end of March,[20] then on April 11[21] and 18[22] at Venice, where the legate was already in possession, even at such an early date, of Columbus's own account "dated on board his caravel, in sight of the Canary island, February 15." Let us recall, by the way, that this date and address are taken literally from the official account translated April 29, 1493, from Spanish into Latin, by Leandro de Cosco, at Rome, where it was immediately printed. Now at these dates Columbus had not yet arrived in Barcelona, or, if at one of them he was actually there, it could not be early enough to permit the legate at Venice to have received by April 18, from Rome, the account

brought by Columbus himself to the Spanish court. Again, we can scarcely admit that he would have communicated his official report to strangers, and even to the Pope, before submitting it to his sovereigns. It was therefore by Ferdinand and Isabella that this document was forwarded to Rome, and in the package containing the diplomatic dispatch which they must have sent on this occasion to their ambassadors.

Columbus, in sending his report to Ferdinand and Isabella (under cover to their treasurer, Gabriel Sanchez), may have informed them at the same time of the claims which Portugal intended to put forward; but neither documents nor chronicles known at this day contain the least information on the subject. Nor are there any traces of proceedings to that end on the part of the ambassadors of João II. at the Court of Spain in 1493. And the action of Ferdinand and Isabella in bringing the matter immediately before the Pope

was natural in the fifteenth century when Christian princes were accustomed to place their territorial conquests or discoveries at the feet of his Holiness before entering on absolute possession.[23]

III.

THE THREE BULLS OF MAY, 1493.

THE efforts of Bernardin de Carvajal and Ruiz de Medina, the regular Spanish ambassadors at Rome, were crowned with success about a month after they had received the instructions sent from Barcelona by the Spanish sovereigns.[24] The two diplomatists were instructed to obtain, according to the general custom,[25] the donation of the newly-discovered countries. The Church was then acknowledged to be the only power possessing such a right, either in consequence of the pretended edict of Constantine conferring on Pope Sylvester the sovereignty over all the islands of the globe; or by virtue of the authority of the Almighty alleged to have been

given to popes in the person of Saint Peter, and which they claim to enjoy in this world as the vicars of Jesus Christ.

Alexander VI. made the requested grant by three Bulls, amounting in substance to two only, all of which have reached us. These are "privileges," which were issued in the particular form of the small Bulls, called by the pontifical chancery *tituli*, or gracious acts.

The first of these privileges (A), or Bull *inter cætera*,[26] of May 3, 1493,[27] grants to Spain the countries which Columbus had recently discovered, and those which he hoped yet to discover in the West. This donation is made, "because of all works, the most agreeable to divine Majesty is that the Christian religion should be exalted and spread everywhere; that the salvation of the human soul should be secured in all countries, and that barbarous nations should be subjugated and converted to the Catholic faith."

The second of those privileges (B), or first[28] Bull *eximiæ devotionis*, has been taken by the few historians who have mentioned it as a simple invoice sent with Bulls A and C when they were forwarded to Spain. The mistake doubtless arose from the fact that Raynaldi, who published it,[29] borrowed his text from the register called Common Letters (*Litteræ communes*), which certain critics imagine to contain correspondence. But it is a real Bull, certainly issued with the same formalities as A and C, although in substance it is only a sort of condensation of A. The pontifical privileges were often accompanied by a second *littera*, shorter than the first, and of which it was, in fact, the notification. In the present instance, this is shown by the phrase, "prout in nostris inde confectis literis plenius continetur" (as is more amply contained in our letters executed to that effect), which is a reference to Bull A, and corresponds with the expression in English and American

legal documents: "as will more fully appear by referring to the original deed."

Yet, this *littera* was not exactly an abridgment of the primary Bull, resembling, for instance, the abstracts of testaments, grants, bills of sale, or conveyances, which our recorders deliver constantly. The pontifical chancery drafted anew important Bulls, but in a condensed form, which, precisely like the prototype, were transcribed in full in its registers. These were also legalized, not simply as being "true copies," or mere abstracts, but as authentic originals.

The present B, which is one of those original documents, bears in the registers the visa of Johannes Nilis, notary of the auditors of the Rota, and that of Domenico Galleti, apostolical scribe. It might be called a Papal Bull for common use. Copied many times over by a notary public, and sealed by certain ecclesiastical dignitaries, these were doubtless carried by the officers of the Spanish or Portu-

guese Crown in their maritime expeditions, to be exhibited at the first requisition, whilst the originals, both of this instrument and of the ample and more solemn Bull, were preserved in the Royal archives.

As this small Bull, so to speak, is more concise and clearer without being less complete, so far as the subject-matter is concerned, than the Bull *inter cætera*, of May 3 (A), we give it here in English. Upon the whole, this document may be considered the starting-point of the diplomatic History of America.

"Alexander, etc. To our most dear beloved son in Christ, King Ferdinand, and to our most dear beloved daughter in Christ, Isabella, Queen of Castile, Leon, Aragon and Granada, illustrious sovereigns, Greeting, etc.

"The sincerity of your remarkable affection and the purity of the faith with which you venerate us and the Church of Rome, justly deserve that We should kindly grant unto you the means of prosecuting your godly and laudable purpose and the enterprise initiated

for the search of lands and distant and unknown islands under circumstances more and more advantageous for the glory of the Almighty God, the enlarging of the Empire of Christ and the propagation of the Catholic faith.

"Now therefore, We, out of our own motion, certain knowledge and the plenitude of our Apostolic power, have given, granted and assigned unto you for ever all lands in general and in particular and far remote and unknown islands, situate westwards towards the Ocean, discovered or to be discovered in the future by you or your messengers sent for that purpose, not without great labour, great perils and heavy expenditures, [that is] the lands which are not actually possessed by any Christian prince, with the dominions, cities, castles, places, farms, rights and jurisdiction appertaining thereof, to you, your heirs and successors, as is set forth more at length in our [Apostolic] Letters drawn to that effect.[30]

"And as on the other hand, diverse privileges, favours, liberties, immunities, exemptions, powers, letters [*i.e.*, Bulls] and concessions were granted by the Holy See to several Kings of Portugal who in the countries of

Africa, Guinea, the Gold Mine and elsewhere, have also discovered and acquired islands by virtue of similar grants and donations to them granted by the Holy See, We, desiring in full justice and convenience that you, your heirs and successors already named, should not enjoy less favours, prerogatives and privileges, We, of our own motion, and not at a request addressed to us by you or one of you, but of our own entire volition, knowledge and fullness of Apostolic power, do by our pontifical authority and by these presents, and by virtue of the special gift of grace, grant that you, your heirs and successors already mentioned, may in all the islands and main lands thus discovered by you or in your name, at the present day, and to be discovered in the future, freely and legitimately use, profit and enjoy, wholly and everywhere, in general and in particular, the favours, privileges, exemptions, liberties, powers, immunities, letters and concessions granted in the same manner to the Kings of Portugal, all the clauses of which We desire to be considered as if they were inserted word for word in these presents, and sufficiently set forth and inserted just as if they had been specially granted to you, your heirs and successors already mentioned, and we extend the

same wholly and for every part, to you, your heirs and successors already mentioned, granting and conveying the same in like form for ever, notwithstanding the pontifical edicts and ordinances as well as grants made in the letters granted to the Kings of Portugal, and notwithstanding all impediments whatever.

"But forasmuch as it would be very difficult for the present letters to be carried to all such places as should be expedient, We will and decree of our like volition and knowledge, that the transcripts of these presents, penned by a notary public thereunto required and provided with the seal of any person clothed with ecclesiastical dignity, or the seal of an ecclesiastical court, the same faith and credit shall be given thereunto in judgment or elsewhere and every where, just as if these presents were shown and exhibited.

"It shall therefore be lawful for no man to infringe the tenor of our favors, extension, grant, concession, determination and degree, etc. And if any one should presume to attempt it, let him know that he shall thereby incur the indignation of God Almighty and of his holy apostles Peter and Paul.[31]

"Given at St. Peter's of Rome, in the year one thousand and ninety three, the fifth of the

nones of May [*i.e.*, May 3d], the first year of our pontificate [*i.e.*, 1493].

"Gratis, by order of our most saintly sovereign, the pope.

"D. GALLETI.

"Io. Nilis." [32]

By the Bulls A and B, just described, it is seen that Alexander VI. had granted to the Catholic Sovereigns the islands and continents recently discovered, as well as those which might be discovered thereafter by their agents, but which were not yet under the sway of other Christian princes. And by those islands and continents the Pope intended the western regions, towards [the countries of] the Indians, in the Oceanic sea: "per partes occidentales ut dicitur versus Indos, in mari Occeano."

Apparently, within the twenty-four hours which followed the publication of the two Bulls, Alexander VI., May 4, published a third,—Bull C.[33] By this the Atlantic dominion of Spain, which, according to the two Bulls of May 3,

might have commenced, strictly speaking, with the very seaboards of Europe, and extended uninterruptedly westwards (excluding, however, the possessions of Christian princes), was made to begin to the west of a meridian one hundred leagues west and south of the Azores and of Cape Verde: "Quæ linea distet a qualibet insularum, quæ vulgariter nuncupantur *de los Azores y Cabo Verde* [sic] centum leucis versus occidentem et meridiem." These terms, half Latin, half Spanish, have puzzled geographers. In fact, they are vague or contradictory. True it is that the expression in the same Bull: "a polo Arctico, scilicet Septemtrione ad polum Antarcticum" (from the Arctic pole, that is, the north pole, to the Antarctic one), indicates clearly that the space conceded by the Bull extended north and south of the Azores *and* Cape Verde. But this rather complicates the difficulty, as there is a difference of at least twenty-two degrees of latitude, as well as one of seven degrees of longi-

tude, between that cape and the Azores Islands. Even, if instead of reading only "Cape Verde," we accept the expression used in the cedula of the Catholic Sovereigns of May 28, 1493: "las islas de Cabo Verde," the starting point is impracticable, the Azores and the Cape Verde archipelago being neither in the same latitude nor in the same longitude.

IV.

ALLEGED PROTEST OF PORTUGAL AT ROME.

THE difference in the dates between the two Bulls *inter cætera*, the one of May 3, the other of May 4, has led to the belief that immediately after the publication of the first Bull Portugal had lodged a protest with the Curia, and that the Pope had yielded at once to the demands of João II. in issuing a third Bull (C), which would thus have been a Bull of Compromise, or Restrictive. But it is improbable that the restriction was prompted by any such circumstance.

It is necessary at the outset to recall the fact that no mention whatever of Portugal is to be found in the Bull of May 4, and if she is named in that of

May 3 it is neither to confirm nor to protect her rights to Oceanic possessions, as is generally believed. Alexander VI. only and incidentally declares therein that the Kings of Portugal having obtained formerly from the Holy See certain privileges, favours and immunities concerning Africa, Guinea and the Gold Mine, he grants to Spain, as regards the islands and lands discovered, or to be discovered by her, privileges, favours, and immunities identical to those which Portugal possesses regarding her African possessions. Nothing more! The clause seems to have been inserted simply to avoid repeating in detail articles set forth at length in other Bulls. The protection of the rights of Portugal, therefore, must not be sought there, but (if anywhere at all) in the clause of the Bull *inter cætera*, of May 3: "Omnes et singulas terras et insulas . . . quæ sub dominio actuali temporali aliquorum Dominorum Christianorum constituæ non sint" (All and singular the lands and

islands . . . such as have not actually been heretofore possessed by any other Christian prince).

We are not even certain that there were ambassadors from Portugal at Rome at the beginning of May, 1493. We only know that João II. intrusted to Pedro da Sylva, Grand-Commander of Aviz, an Embassy of Obedience to Alexander VI., on the occasion of his accession to the papal chair. This pope was elected August 11, 1492; but those embassies were sent sometimes so late as eighteen months or two years after the election. da Sylva, besides, was instructed to have a conference with Charles VIII. in Italy before repairing to Rome, and had to wait a long while for the French King at Genoa: "na cidade de Cena muyto dias esperando polla entrada del Rey Carlo de Francia em Italia,"[34] the latter not crossing the Alps till September 2, 1494. But Ruy de Pina says that Sylva was to meet at Rome Ferdinand d'Almeida, Bishop of Ceuta,[35] and Diego de

Sousa, Bishop of Porto "who were in that city." These two prelates we must assume to have been resident ambassadors of Portugal there, just as Carvajal and Medina occupied the post for Spain. It is probable, therefore, that they were at Rome when the Pope issued the three Bulls, A, B and C; but it is not certain.

At all events, there is no proof whatever that the Line of Demarcation was established in consequence of a protest on the part of the envoys of João II., and as a concession made in his favour by the Holy See. One hundred leagues west of the Azores was not, as we shall soon notice, such a space as the King of Portugal would ever have claimed or been satisfied with, considering that he viewed himself as the lawful sovereign of an entire third of the world, in which third he placed the regions which Columbus had just discovered.

Everything tends to show that in the dispatch sent by the Catholic Sovereigns to their ambassadors at Rome, apparently

in the last two weeks of March, 1493, to obtain the grant of the countries found by Columbus, they had themselves indicated where the Oceanic dominions of Spain should commence. Thus, in the cedula confirming the titles conceded to the great Genoese, Ferdinand and Isabella express themselves as follows: "It is our will that you be admiral of [that part of] the Ocean sea belonging to us, which begins at a band or line that *we have caused to be traced*, and which passes in the Azores and Cape Verde Islands, from North to South, and from one pole to the other; in such a manner that everything west of it is ours." [36] This cedula is dated from Barcelona, May 28, 1493, while the instructions given to de Spratz, when the Pope sent him to Spain with Bulls A, B and C, are dated only May 17 of the same year. It is scarcely probable that this nuncio left Rome immediately on his errand, for hurry never was one of the traits of the papal chancery. Be that as it may, the

presence in Spain of those Bulls is mentioned for the first time July 19, 1493.[37] Further, the two Bulls of May 3 specify no limits whatever; and if the Bull of May 4 actually sets forth one, it is, as we have just shown, different from the boundary fixed by Ferdinand and Isabella, as they ignore entirely the grant of one hundred leagues, and explicitly locate the Line of Demarcation in the longitude of the Azores and Cape Verde Islands.

Finally, there are no vestiges of documents either in Spain, in Portugal, or at Rome, mentioning a controversy of any kind on the subject in May, 1493, and even for many years afterwards. In spite of personal researches and others made at our request by the Roman archivists in the Vatican and Lateran, in 1867 and 1880, it has been impossible to find in the pontifical archives the least indication bearing on the subject.[38] It is probable that none will ever be found. Raynaldi, who, after Baronius, had explored

those repositories with greater zeal and ability than anyone else, only says that to avoid the controversies *which might have arisen* between the Portuguese and Spaniards, at a time when the fleets of both nations were sailing on the ocean, Alexander VI. decided to divide the East and West Indies by a third Bull. But he ascribes the initiative of the act to the Pope himself, and bases the brief details which he gives, solely upon the authority of Barros and Zurita.

Now, Barros, as usual, does nothing else than plagiarize Resende, Resende in his turn plagiarizes Ruy de Pina, adding a few comments of his own, and Ruy de Pina, the only original authority for what is known on the subject, merely says that the discovery accomplished by Columbus was a cause of estrangement and contentions between Portugal and Spain, followed by reciprocal embassies, as well as conventions and treaties between the two kingdoms. He does not

even seem to suspect that any difficulties were experienced in Rome.

As to Zurita, who wrote a century afterwards, he cites no document, and we know personally that the archives of Aragon contain no document of the time on the subject.[39]

Herrera is often quoted regarding that question. But we must again repeat that this chronicler, who is invaluable for the greatest part of the sixteenth century, has nothing for the six books of his first Decade,—which alone are of interest to us just at present,—except what he borrows from Las Casas (consequently from the "Historie"), and from Zurita. We are even richer in documents for that period than he ever was, notwithstanding his activity, talent and researches.

Muñoz is also often quoted. If that learned and indefatigable investigator of the Spanish archives had ever discovered a document concerning the alleged negotiations with the Holy See, we should find it in his vast collection of copies and

notes, made expressly by royal order to write a history of America, or in Navarrete. The statements of those historians therefore are mere inferences, such as any of us can draw from the supposed state of mind of João II., from the above-mentioned Bulls and from the motives of the Treaty of Tordesillas.

Consequently, so far as we know from documents, there were no controversies nor outside influences to modify the first intentions of Alexander VI. Besides, they could not have arisen and culminated in the twenty-four hours which elapsed between the issuing of the two Bulls *inter cætera;* as anyone at all familiar with the dilatory habits of the Court of Rome will readily believe.

We likewise notice in Bull C the grant of a right which shows how little the Pope was disposed to hearken to demands of the sort on the part of Portugal, and particularly to enforce the rights which she claimed under the

Bulls of Nicholas V. and Sixtus IV. Its wording is as follows: "We do give, grant and assign unto you [*i.e.*, Ferdinand and Isabella] your heirs and successors, all the main lands and islands, found and to be found, discovered or to be discovered, toward the West and South . . . embracing in this donation all continental lands or islands whatsoever found or to be found toward India, or toward any other part whatsoever it be." [40]

Those dominions, present and prospective, did not commence, it is true, until 100 leagues west of the Azores; but the grant in reality took away from Portugal the basis and principal object of her rights, since India was not excluded from the regions thus conceded to Spain. Nay, no limit whatsoever was assigned westward; which, the earth being then admitted at Rome, as well as anywhere else, to be round, and there being no mention where the East commenced, involved the possibility on the part of Spain to claim sovereignty over regions

which Portugal considered to belong to herself.

Herrera[41] says that when Ferdinand and Isabella requested the Pope to grant to them the newly-found lands, they instructed their ambassador to let him know that the discovery had been made without encroaching upon the dominions of Portugal, Columbus having been positively commanded by Their Highnesses not to come within 100 leagues of the Mine, or of Guinea, or of any other part belonging to the Portuguese. Some writers have seen in this assertion of Herrera that 100 leagues away from the Portuguese possessions was the place where the Catholic Sovereigns[42] wished the Line of Demarcation established.

In the first place, there is no document known to warrant the statement of Herrera. On the contrary, what we possess on the subject,—and it is almost certain that it is all which the celebrated chronicler himself ever had for the period,—is in contradiction to such an asser-

tion. Columbus himself says that his instructions were only "to avoid going to the Mine or to any part of Guinea," without reference to the "hundred leagues," although the occasion was propitious for such a reference. Then the Catholic Sovereigns themselves state that the Line which they had caused to be marked passed in the Azores and Cape Verde Islands. Finally, in the instructions which they gave Columbus for the *second voyage*, he is again simply enjoined not to touch either at the Mine or Guinea.

The supposition of Humboldt[43] that the Line was drawn to agree with the notions of physical geography of Columbus himself, in other words, that the Pope fixed it where, according to the great Genoese, navigators first find "a great change in the stars, in the aspect of the sea and the temperature of the atmosphere, and where the compass shows no variation," is scarcely admissible. It is true that those phenomena were noted by Columbus in the course

of his first voyage; but they are mentioned only in his journal, which he necessarily kept with him until his arrival at Palos. But when the Bulls were drafted at Rome, only a copy of the "Epistola" sent to Ferdinand and Isabella from Lisbon was known there, and that contains no allusion whatever to those phenomena.

It seems most likely that the determination of the limit, at a distance of 100 leagues from the Azores and Cape Verde Islands, was suggested to the Pope by his scientific advisers. Their sole object was to avoid encroaching on the regions conceded to the kings of Portugal by the Bulls of Nicholas V. and Sixtus IV., in accordance with the expression therein contained: "Cum suis mineris et quibuscumque aliis insulis, littoribus seu costis, *maris*, etc.," applied to the Azores and to Guinea. And 100 leagues seemed to them, rightly enough, a sufficient margin.

V.

THE BULL OF DEMARCATION NOT "RIDICULOUS."

In our days, after four centuries, the power which the popes claimed to exercise regarding the paramount sovereignty over the islands of the world, appears to us excessive and singular. It is not without surprise, therefore, especially among Protestant nations, that Venezuela, for instance, is seen at such a late date to appeal to a papal grant as the source of her rights over Guiana in the present conflict with England. But it is evident that to judge the question with impartiality, we must carry our thoughts back to the time when the donation was made to Spain, and not consider it with the ideas which prevail to-day.

Apostolical letters constituted in a great measure at the close of the fifteenth century what might be termed the ruling law of Europe, since they were based upon traditions, as well as rules which were universally deemed to be equitable, or, at all events, received as such by all European nations. England, which now describes that supreme authority and its logical, direct and immediate consequences as "comical" and "ridiculous,"[44] yielded to it formerly with as much readiness and respect as any other nation. Nay, during several centuries, her historians believed, and a number still believe it, that the rights of Great Britain over Ireland had precisely the same origin as the rights claimed by Venezuela over a part of British Guiana. And so it is, historically.

In the "Metalogicus" of John of Salisbury can be read the following statement: "At my request, the Pope granted and gave to the illustrious King of England, Henry II., Ireland to possess

by an hereditary title, as is shown by his Letters, which are preserved to this day. For all those islands, by virtue of a very ancient right, are considered to belong to the Roman Church, in consequence of the donation made by Constantine, who founded and endowed that Church. Besides, Pope Adrian sent through me a golden ring adorned with a gem of great value, in proof of the right to govern Ireland."[45]

One of the Letters mentioned by John of Salisbury is evidently the Bull *Laudabiliter*, inserted by Baronius[46] and by Rymer[47] in their collections, under the date of 1155. We notice in that document, among the reasons of Adrian IV. for granting to Henry II. the kingdom which he was preparing to conquer, two of those adduced by Alexander VI. in the Bull granting the New World to Ferdinand and Isabella, viz.: for the strengthening of the Church, and the spread of the Christian religion.[48]

The authenticity of a part of tha

apostolic letter is now contested,[49] and not without cogent arguments. But it cannot be denied that the Bull *Laudabiliter* well expresses the sentiments which, as regards the alleged primordial rights of the Holy See, were recognized by European nations in general, and England in particular. Even if, as several scholars of note say, the Bull had been invented or interpolated by Henry II., we are bound to infer from such a deception that the sovereignty of the popes, at least over the islands of the world, was recognized in the British Isles as well as anywhere else. Otherwise, of what use would have been the supposed interpolation?

Further, on the Sunday preceding the Feast of the Assumption in 1172, Henry II., in the Cathedral of Avranches, before the legates, bishops, barons and people, his hand on the Gospels, placed his own kingdom of England and all its dependencies under the pontifical sovereignty.[50] The following year he was more explicit still. In a letter addressed

to Pope Alexander III., in 1173, the authenticity of which has not been questioned, he says to the pontiff: "The Kingdom of England belongs to your jurisdiction; and as to the obligation of feudal right, I acknowledge myself to be the subject of you alone." [51] It was not therefore a mere spiritual sovereignty, but one paramount and absolute.

Under the circumstances, it is evident that a king who declared himself to be, in such terms, a mere vassal of the Pope, would not have acted inconsistently in asking of him the grant of the kingdom of Ireland which he coveted.

This submission to the rights or pretensions of the papacy was not limited in England to the Plantagenets. It continued in the Houses of Lancaster and York.[52] Such, at least, was the case with the first Tudor. The five embassies of obedience which Henry VII. sent to Rome from 1485 to 1493,[53] prove his catholic deference. It is no exaggeration therefore to say that if the

auditor of the Rota, Jerome Porcio, had kept his promise[54] to publish the discourse "bene et eleganter compositum,"[55] which was pronounced by John Sherwood, Bishop of Durham, when, December 14, 1492, he came with Giovanni Gigli, of Lucca, to place the oath of obedience for Henry Tudor in the hands of Alexander VI., we should find in his oration the same expressions of respectful submission used in the discourses pronounced about the same time by the ambassadors of the Catholic Sovereigns. And just before the time when Borgia granted to Ferdinand and Isabella the countries recently discovered by Christopher Columbus, England still took as a basis for her right of sovereignty over Ireland, the Bull *Laudabiliter*,[56] that is, an authority derived from the same principle and source.

Again, the sending by Henry VII. of John Cabot four years afterwards to discover Cathay does not militate against his regard for the papal authority in that

respect. The King of England doubtless interpreted the rights conceded to Spain and Portugal as not excluding in the main the search by other nations for new lands and islands. The restriction set forth in the Bulls applied only to the discoveries actually accomplished by those two powers. This we see by the fact that Henry VII. imposes as a primary condition the going only to regions heretofore unknown of all Christians: "Quæ christianis omnibus ante hæc tempora fuerunt incognitæ."[57] These are almost the terms of the Bulls *inter cætera*. But those discoveries once accomplished, they required the confirmation and vesting from the Pope, according to the then general custom in Europe.

At that time Henry VII. entertained sincere feelings of respect and gratitude for the papacy. He had not forgotten the eminent service rendered to him only a few years before by Innocent VIII. When, after the Battle of Bosworth, wishing to extinguish for ever the dis-

sensions existing between the Houses of York and Lancaster by marrying his cousin, the daughter of Edward III., he had not only obtained without difficulty the required dispensation, but by sending Giacomo Passarelli to London, and by the famous Bull *ineffabilis sedentis*, the Pope had lent him powerful aid and consecrated the new dynasty.

Under such circumstances Henry Tudor would not have disregarded the decisions of the Court of Rome, with which he never ceased to be in the best of terms, as is shown by the frequent embassies of obedience which he sent him at the end of the fifteenth century.

It is true that by what we know, through Burchard and Infessura, of the orations which were pronounced at Rome by the special envoys of the King of England, particularly that of May 1, 1504, on the occasion of the accession of Julius II., we gather that no mention is made of the countries discovered in the north-west. But the expeditions of John

Cabot, of the brothers Fernandez and o
Bristol shipowners, had yielded no such
results as Henry VII. cared to secure
Those voyages to Labrador and New-
foundland, where the navigators sailing
under the English flag had scarcely found
anything else than barren countries, ice-
bergs and white bears, resulted neither
in profits nor expectations. This is the
reason why we do not see England put
forward Cabot's expedition, as the ground
of her rights to the sovereignty of North
America, until a century afterwards, and
then chiefly to thwart the efforts of
France in colonizing Canada and the
adjacent regions.

VI.

SPAIN SENDS AN EMBASSY OF OBEDIENCE.

We must now revert to what was taking place at Rome.

The correspondence of the Holy See with Spain was behindhand, considering the important events which had lately occurred in Italy. On May 17, 1493, Alexander VI. ordered Francis de Spratz, appointed special nuncio, to repair to Spain and remit to Ferdinand and Isabella an apostolical brief touching matters of high importance. These were the Pope's reasons for his treaty of alliance with Venice and Milan and explanations why he had neglected to send a legate to re-establish amicable relations

between Spain and France, as the latter threatened to wage war, notwithstanding the restitution of Perpignan and Rousillon. At the same time he intrusted to de Spratz "another brief concerning the grant made to the sovereigns of Spain, of the dominion and of the things contained in islands recently discovered by one of their subjects."[58]

Before the said nuncio arrived in Spain and could remit the Bulls to Ferdinand and Isabella, these monarchs, on the occasion of the accession of Alexander VI. to the papal chair, had sent him an embassy of obedience, that is, a solemn mission for the sole and exclusive purpose of giving to a recently elected pope assurances of filial allegiance and submission to his will and decrees, according to a time-honoured custom with Christian princes. This embassy was composed of Diego Lopez de Haro, viceroy of Galicia, principal ambassador, and of Gonzalvo Fernandez de Heredia, Archbishop of Tarragona.

They entered Rome as early as Saturday, May 25, 1493,[59] with the usual ceremonial. On June 12, following, they went in great state to the Floral Field, where the required oath was taken, and an address delivered in a consistory by Lopez de Haro in the name of his sovereigns. In this address he severely upbraided Alexander VI. in person, reproaching him with the wars which raged in Italy, censuring his conduct, as tending to diminish the Christian faith, and blaming him for harbouring in the States of the Church the Moors who had been expelled from Spain, demanding at the same time their expulsion from the Papal states. Finally, he denounced vehemently the venality of offices and simony which prevailed in the grant of ecclesiastical dignities.[60] We must suppose, too, that there was in that bold oration some allusion to the marvellous countries which Christopher Columbus had just discovered, together with the usual expressions of homage at the feet of His

Holiness. Unfortunately, the text itself of that address has not reached us.

The following week, Bernardin de Carvajal, then Bishop of Carthagena, and the regular ambassador of Spain at Rome, who was destined to become a cardinal a few months afterwards, and finally to be excommunicated by Julius II., pronounced on the occasion of that special embassy a sermon, which was immediately printed.

Like all discourses of obedience, Carvajal's is a long dithyrambus, containing here and there useful historical indications. In brief, it is as follows :

"The world rejoices greatly upon the accession of Alexander VI. to the Papal chair ; the Spaniards, particularly, who are his countrymen, are proud of it.

"Spain is a land fertile in illustrious men. Under the shield of her august sovereigns, she pursues the course of her destinies. The aid of God has never been wanting to her. Christ, likewise,

has placed under her sway the Fortunate Islands [Canary], the fertility of which is known and appreciated."

Now comes the passage which affords greater interest to Americanists, and refers more directly to the subject of the present disquisition:

"And Christ has lately revealed other unknown islands in the Indies, which may be considered among the most precious things on earth, and it is hoped that they will soon be converted to the Christian Religion."

After this brief allusion to the memorable discovery of the New World, Ferdinand and Isabella lay at the feet of His Holiness all they possess on earth and on the seas; not only their kingdoms, treasures, fleet and armies, but also their sons and royal persons, which they beg of him to employ for the full maintenance and exaltation of the Apostolic See, and to promote all the wishes of His Holiness. Of all the favours which Heaven has lavished on them,

there is none which they prize so highly as that of announcing to the universe that the princes of Spain are his most devoted children. At the same time they beg him to turn his attention towards the reform of the Church.

Finally, the reverend orator, addressing himself directly to Alexander VI., ends with the following peroration: "Roman calf, supreme pontiff, at whose feet to-day and for ever the Spanish lion humbles himself, let all thy acts be inspired by the little infant Jesus, our Lord, so that thou mayest acquire at the same time temporal as well as spiritual glory with the aid of Him who is blessed throughout all ages."[61]

VII.

THE FOURTH BULL OF 1493.

THE discontent of the King of Portugal was, naturally, very great. Modern historians dwell with complacency on the state of his mind, and of his efforts to vindicate the rights of the Crown.

João II. is represented as having prepared a fleet, under the pretence of an expedition to Africa, but in reality intended to seize upon the countries recently discovered by Columbus.[62] That to lull suspicion, Ruy de Sande had been sent as ambassador to the Spanish Court[63] for the apparent purpose of procuring certain articles from Spain for this African expedition, whilst his real object consisted in proposing a settlement of the present difficulties by establishing a

Line of Demarcation between their dominions. This line, it seems, was to be latitudinal, instead of longitudinal, contrary to the line which the Pope had fixed, and to be traced on the parallel of the Canaries, reserving the north of that line to the Spaniards, and the south to the Portuguese.

Then, as regards Spain, Ferdinand of Aragon, anticipating the real designs of João II., not less wily than himself, is said to have dispatched Lope de Herrera to Lisbon, furnished with double instructions, and with two letters of widely opposite tenor, which he was to use according to circumstances. Thereupon a keen diplomatic game ensued between the two sovereigns; the King of Portugal going so far as to bribe the counsellors of Ferdinand and Isabella. But Ferdinand's object was attained, as he only wished to gain time for the departure of Columbus on his second voyage. In the meanwhile João II., having found that the King of Aragon was foiling

him, sent an embassy to the Pope to implore redress, etc., etc.

These details rest exclusively on the statements of two historians, Zurita and Herrera, the latter simply copying or paraphrasing the former, and both writing at least eighty years after the events. Their accounts, thus far, have not been corroborated by documentary proofs, either in Spain or Portugal, notwithstanding arduous researches instituted in the archives of those countries, and that at a time [64] when they had not suffered from the depredations committed during the Napoleonic war.

Let us add that João II. was not the crafty and unscrupulous king which schemes of that character would make him to be. On the contrary, he was frank and chivalrous to such a degree as to be called by Isabella herself "the Perfect Prince." Ferdinand, on the other hand, was an astute politician; and his historian, Geronimo de Zurita, has been justly accused of subser-

viency. Throughout the volume of his Annals devoted to Ferdinand, can be detected an intention to extol the superior genius and diplomacy of that king. Zurita's account of the transactions may well have been influenced therefore by such a feeling.

The only positive information is to be derived from Ruy de Pina, as he was one of the Portuguese ambassadors and an historian of high character. A few additional details can also be found in authentic documents of the time. The facts are these:

About a month after the interview with Columbus, the festival of Easter being over, João II. held a council of ministers at Torres Vedras, in which it was decided to equip openly a large fleet to vindicate the rights of Portugal over the newly-found countries. The ships were at once made ready, and placed under the command of Francisco de Almeida.

A fortnight afterwards Ferdinand and Isabella were informed by the Duke of

Medina-Sidonia of the fitting out of the Portuguese fleet, and of its real object. They immediately dispatched to Lisbon [65] a gentleman of their household, Lope de Herrera, with a letter addressed to João II., asking for an explanation, requesting him to send ambassadors to them and to postpone all action until his envoys had been shown Spain's reasons and rights in the matter of those transatlantic discoveries. They expressed the wish that he would meanwhile issue a proclamation forbidding his subjects to visit the regions now belonging to the Crown of Castile, by virtue of the discoveries accomplished by Christopher Columbus.[66] The King of Portugal replied that his desire was that each should have what belonged to him ("que cada uno tenga lo que le pertenece").

Accordingly, he appointed two ambassadors, Dr. Pero Diis or Diaz, and Ruy de Pina, and promised not to send the fleet to sea until they had arrived in

Barcelona; Zurita says not before sixty days had elapsed.

On the 2nd of May the Catholic Sovereigns thanked the Duke of Medina-Sidonia for his information, accepted his offer of all the caravels in his dominions to check the project of the King of Portugal, and requested that they might be kept in readiness in case of emergency.

Less than a month afterwards Their Majesties were informed that the Portuguese fleet had sailed out. Columbus received the same information, apparently from a different source. It was erroneous, but instructions were sent to Bishop Fonseca to cause the armaments of Portugal to be watched, and should a fleet really be fitted out, to have one twice as strong prepared in Seville to accompany Columbus on his second voyage.

In course of the following month, Columbus wrote to Ferdinand and Isabella that a Portuguese caravel had actually sailed from Madeira on a voyage

of discovery. The ambassadors of João II., having been interrogated on the subject, replied that it was contrary to the orders of the King, who, upon hearing of the departure of that caravel, had sent at once three caravels to overtake her. Their Majesties were of opinion, nevertheless, that this was a blind, and that João II. in reality intended to make discoveries in the regions visited by Columbus. The Portuguese ambassadors, although dispatched in June, did not reach the Spanish Court until August 15,[67] having come by sea all the way, it seems, from Lisbon to Barcelona. The negotiations commenced on the 18th, and soon assumed a technical character, if we may judge from the request which Cardinal de Mendoza sent to the celebrated cosmographer, Jaime Ferrer, to come at once to the Court with his mappamundi and scientific instruments.[68] Their Majesties at the same time wrote a letter to Columbus, urging him to forward to them the degrees [of latitude

and longitude][69] of the islands and countries which he had discovered, and the [number of] degrees he had travelled over in his voyage. But Columbus, who was not disposed to make known those scientific as well as practical details, did not comply with that just and indispensable request.

Ferdinand and Isabella soon became convinced that the Portuguese envoys were not sufficiently informed on the subject, or, to use Their Majesties' own expression, "they had come without having first been made aware of what belonged to Spain."[70] Meanwhile, Ferdinand and Isabella were planning the extension of the Bull of May 4 for reasons of a very serviceable character, which they stated to Columbus, as follows :

"Since the conferences held with the Portuguese ambassadors, some say that between the cape called of Good Hope by the Portuguese, which is on [*sic pro* beyond] the route they now follow

to reach the Gold Mine and Guinea southward, and the line which you say should have been in the Papal Bull, there may be islands and main lands, which, on account of their position under the sun, are believed to be of great advantage and richer than all the others. And as we are aware that you know more than anyone else on the subject, we request you to send us at once your opinion regarding the same, because if it seems to you that this matter is as it is thought to be, the Bull should be amended." [71]

The reply which Columbus sent to his sovereigns unfortunately has not reached us.[72] But we may fairly assume that he approved of the suggestion to have the Bull modified in the sense proposed. Judging from the allusion to the line which, according to his notions, should have been traced in the Bull of May 4, we must believe that he regretted to see it fixed so far to the westward, and disapproved consequently

even of the margin of 100 leagues granted to Portugal by the Pope.

The probability is that Ferdinand and Isabella immediately forwarded to Rome a request to have the Bull of May 4 so amended as to include in the donation made to Spain, lands and islands situate more to the eastward.

Alexander VI. granted their request by a fourth Bull, dated September 25, 1493, which is known at present only by a Spanish translation made August 30, 1554, by one Gracian, doubtless Diego Gracian de Aldrete, then secretary of Philip II. for foreign languages.[73] That translation bears the title of "Extension de la concesion y donacion Apostólica de las Indias,"[74] and was preserved in the registers at Simancas, among the papers of the *Patronato Real.* The time when the translation was made leads us to believe that the original Latin text must have really been in the State archives; for in the middle of the sixteenth century there was no reason for

committing a forgery of that character. But the archivists failed to find it for us at Simancas or at Seville. What is worse, there are no traces of that important Bull, so far as known, either in the Vatican or Lateran, notwithstanding arduous researches undertaken at the time of the Quatercentenary, and since, at our request.

This is so much the more to be regretted as the preamble and subscription would have enabled us to ascertain the intrinsic character of the Bull. Nor should we forget that under the pontificate of Alexander VI. the fabrication of false apostolical letters, even by bishops, was a common thing [75] and that these forgeries were put in circulation without the least scruple. Withal, we feel constrained to believe that this Bull has really existed in an authentic form. Its importance is great indeed, as there is no longer in its articles question of the Line of Demarcation, and the Pope abrogates therein, tacitly, the

rights reserved to Portugal by the old apostolical letters. Thus, the field of maritime discoveries is extended in favour of Spain as far as the regions in the East, including India.[76] The terms and motives of this new extension deserve to be stated literally. Addressing himself to the Catholic Sovereigns, Alexander VI. says:

"But as it may happen that your deputies, captains or vassals may, in navigating westwards or southwards, sail in the direction of the East, reach the same, and discover there islands and main lands belonging to India. . . . We amplify the donation and extend it with all its clauses to all the islands and main lands whatever, discovered or to be discovered, which in sailing westwards or southwards are or appear in the western, or southern, or eastern parts, and in those of India."[77]

Portugal therefore possessed henceforth only the route to the East Indies by the Cape of Good Hope which Bar-

tholomew Dias had discovered in 1487. And if the belief, then universal, had been true, that the Atlantic Ocean bathed the Asiatic regions in the west, and if Columbus in his subsequent voyages had landed after September, 1493, in the islands of the Indian Seas, or even on the east coast of Africa, Spain would have been the absolute rightful sovereign of all those countries, the Bulls issued in favour of Portugal by Nicholas V. and Sixtus IV. to the contrary notwithstanding.

There is a clause showing, above all others, how erroneous is the idea generally entertained that it was in the mind of Alexander VI. to protect the rights which Portugal held from previous popes.

In the Bull of May 4, His Holiness declared that the donation made to Spain should be deemed valid, in spite of all other apostolic constitutions and ordinances and all things of an opposite character ("non obstantibus constitutionibus et ordinationibus apostolicis cæterisque contrariis quibuscumque").

These words, strong as they certainly are, were not sufficiently forcible, it seems; for in the Bull of September 25, the declaration is in these terms: "Notwithstanding all apostolical constitutions and ordinances, and whatever donations, concessions, powers and assignments made by us or by our predecessors to any Kings, Princes, Infants, or other persons, orders or military bodies whatever, and for any cause whatsoever, be it even for reasons of religious faith or reverence."

It is by this Bull, and not that of Leo X., granted to Portugal, November 3, 1514, that the Line of Demarcation may be said to have been virtually superseded, and the validity of the rights of discovery and conquest established. For the sentence in the Bull of Leo X., granting to Portugal "all past and future conquests and discoveries not only from Cape Bojador to the [country of the] Indians but every where else, even in parts then unknown," is not more comprehensive than the phrase in the Bull of

Alexander VI. of September 25, 1493, granting to Spain "all islands and main lands whatever discovered or to be discovered in the West, in the South and in the East."

At all events this is certainly the interpretation which in Spain was given to that clause, even after the signing of the Treaty of Tordesillas. Thus, in the opinion drafted by Jaime Ferrer for Ferdinand and Isabella, February 28, 1495, he says that his understanding of the treaty is that everything in the East shall belong to Spain, if her ships first go there: "Y la otra parte por Occidente fasta tornar por Oriente la vuelta del sinù arábico, sera de los Reyes nuestros, si sus navios primero allà navegaran."

VIII.

SIGNING OF THE TREATY OF TORDESILLAS.

We do not know whether the Portuguese ambassadors, or even João II., was made aware of this fresh concession on the part of Alexander VI. If he was, and if, as Zurita says, he had caused efforts to be made at Rome to obtain a right to maritime conquests in the west of the Atlantic Ocean, the disappointment must have been very great.

As Ferdinand and Isabella had anticipated, the Portuguese ambassadors soon set out from Barcelona for home, to consult with the King of Portugal; but it is not known whether they were prompted by this new aspect of the case, of which they may still have been ignorant.

A couple of months afterwards, the Catholic Sovereigns, without waiting for the return to Spain of Dias and Pina, sent to Lisbon an embassy of their own, composed of Garcia de Carvajal[78] and Pedro de Ayala, who, two years later, whilst Spanish ambassador in England, had intercourse with John Cabot, and kept Their Majesties informed of his projects, as well as of his transatlantic discoveries under the flag of Henry VII.

Zurita relates that the embassy left Barcelona on November 2, 1493, being preceded by a gentleman of the royal household, called Garcia de Herrera, to prepare João II. to receive the Spanish envoys. He also says that a few days after their arrival the parties settled among themselves the demarcation: "tomo entre ellos el asiento de la demarcacion." If so, we should not place faith in the anecdote first related by Garcia de Resende,[79] that after the ambassadors had delivered their credentials and were retiring from his presence, the

king looked at them contemptuously, and said: "This embassy from our cousin wants both head and feet,"—alluding to Carvajal, who was, in his opinion, of weak intellect, and to Ayala, who was lame of one leg.

Be that as it may, more than four months elapsed before actual steps were taken by the King of Portugal to bring about a final settlement, as it was not until the 8th of March, 1494, that he appointed commissioners to repair to Barcelona and negotiate the treaty with Ferdinand and Isabella.

The Portuguese embassy this time was composed of Ruy de Sousa, his son João de Sousa, and Arias de Almadana, with Estevão Vaz for secretary. They were empowered to divide with Spain in a precise manner the sea containing the islands discovered and to be discovered ("que la mar en que las dichas islas estan y fueren halladas, se parta y marque entre nosotros en alguna buena, cierta y limitada manera.")[80]

The Portuguese ambassadors, it seems, carried out the negotiations direct with Ferdinand and Isabella at Medina del Campo. And it was only when the parties had come to terms that deputies were appointed to act on behalf of Spain. On June 5, the Catholic Sovereigns executed the necessary powers appointing to that office Henrique Henriquez, Gutierre de Cãrdenas, and Dr. Rodrigo Maldonado de Talavera, who had been one of the experts selected by Queen Isabella to examine the projects of Columbus in 1487.[81]

As regards what followed, we possess no information whatever, beyond the fact that two days only after the required powers had been given by Ferdinand and Isabella to their deputies, a meeting was held at Tordesïllas, a town of old Castile not far from Valladolid, and the treaty signed immediately, on the 7th of June, 1494.

IX.

ALLEGED PARTITION OF THE GLOBE.

It is generally believed that by the Bull of Demarcation, Alexander VI. divided the terrestrial globe in two parts, and gave, *in solido*, one to Spain and the other to Portugal; excepting, however, what then belonged already to the princes of Christendom.[82]

It does not seem that the terms of the Bull of May 4, or any other, involved such an absolute meaning. We think that the donation: "Omnes insulas et terras firmas inventas et inveniendas, detectas et detegendas," must be understood to apply only to the islands and main lands which Spain and Portugal had discovered, and those which one or the other of these two nations should discover in future.

In the Bulls of May, 1493, mention is made only of the West, North-West and South-West. But it was already known that the earth was a sphere ; and it was sufficient to look at one of the geographical globes which, since the time of the Arabs could be easily obtained almost everywhere in Europe, to become convinced that the Spanish navigators would not fail, some day or other, to reach the eastern regions which ancient Bulls seemed to have granted to Portugal. This was so much the more certain that all the globes, mappamundi and planispheres of the time, ignoring, of course, the existence of the American continent, represented the Atlantic Ocean as bathing the shores of Europe and those of Asia. Nay, it was that cartographic representation which, as is well known, suggested to Toscanelli and to Christopher Columbus the idea of reaching by a western route Cathay and the islands of India.

We must assume that the scientists of the Holy See were not long in seeing the

consequences of the Bulls *inter cætera* from that point of view. A ready means to avoid complications would have been to state,—however erroneous the computation might have proved to be,—where the East commenced; and since they had thought of a line of demarcation as the initial point, to continue it to the other hemisphere. That notion, however, involved consequences which the Church was not yet disposed to accept; for it would have been an official recognition of the existence of the antipodes. The probability therefore is that the partition was based upon a plane chart, regardless of the sphericity of the earth.[83]

On the other hand, when we weigh the terms of all the Bulls of concession, we find that although the *substratum*, so to speak, is the universal sovereignty assumed by the Holy See, yet the portion of that sovereignty transferred either to Spain or Portugal by the apostolic letters is made practically subservient to the right of discovery.[84] This, of course,

left to the contracting parties sufficient authority to dispose, independently of all interference on the part of the Pope, of the lands and islands already discovered. It must also be inferred that Spain and Portugal considered themselves as at liberty to enlarge or to contract their sphere of action, with each other's consent, in anticipation of any discovery which one or the other might make in the future. True it is that they intended to beg the Pope to confirm by special Bulls all arrangements to that effect; but it seems to us to have been chiefly to guard against the intrusion of other Christian princes. Be that as it may, it was on this basis that the Treaty of Tordesillas was made.

In the preamble of that treaty, the contracting parties simply agree to enter into an agreement for the sake of peace and concord, and without any reference whatever to existing rights, or to papal Bulls granted at any time. Nor is there any mention of the demarcation line pre-

viously fixed by Alexander VI., and still less, of course, of an extension westwards of the same. Spain and Portugal stipulate,—as if it were the first time that the question of limits had ever been mooted,—in this wise :

"That in the Ocean sea there shall be drawn and marked a band or line, straight from Pole to Pole, from the Arctic Pole to the Antarctic Pole, that is, from North to South ; which band or line and mark shall have to be and is [hereby] established straightly, as aforesaid, at [a distance of] three hundred and seventy leagues west from the Cape Verde Islands, by [means of geometrical] degrees or otherwise, as best or more promptly can be done, but so as not to [cover] more [space]."[85]

It was further agreed that within ten months, one or two caravels, with pilots, astronomers and mariners on board, should be sent by Spain and by Portugal to meet at the Grand Canary, and proceed thence due west to the agreed distance of three

hundred and seventy leagues from the Cape Verde Islands, and mark there the limit in degrees, or in leagues, as should be found more convenient, commencing either at the north or at the south. If luck would have it that any island or continent should fall under the Line, the direction of which should be ascertained and marked at the commencement of such island or continent by the erection of a tower or by some other suitable sign.

Finally, the Pope was to be requested to confirm the treaty, and to issue a Bull reciting its tenor and stipulations. A noticeable clause is that not only the contracting parties swear on the Holy Cross to obey the articles of agreement, but in case of their violating it, they bind themselves never to ask the Pope or any prelate for absolution of such act.

X.

COLUMBUS AND THE TREATY OF TORDESILLAS.

COLUMBUS was at sea, exploring the West Indies, when Ferdinand and Isabella ratified the Treaty of Tordesillas, which they communicated to him in a letter sent by Antonio de Torres, August 16, 1494. The notification was in these terms:

"As to affairs with Portugal, an arrangement has been entered into here with her ambassadors, which seems to us to be the one which presents least inconvenience. That you may be well and amply informed regarding the same, we send you a copy of the stipulations. For this reason it is not expedient to enlarge upon it just now, except that we order and require that the Treaty be respected in its entirety, and that you cause to have

it obeyed in every respect according to its tenor. Relatively to the band or limit which is to be established, as it seems to us a very difficult thing, requiring much science and confidence, we wish to know whether you would not act in that respect, and join those who on the part of the King of Portugal are to settle the question. If it should prove too difficult for you to come, see whether it cannot be done by your brother,[86] or some other person. If so, instruct him carefully, in writing and by word of mouth, as well as by a sketch, in the best manner possible, and send him to us by the first caravel. . . . At all events, write to us fully what in your opinion we should know, and which may promote our service. Act in such a manner that your letters and what you have to send can be forwarded at once, so that it may reach us before the time which we have fixed with the King of Portugal."[87]

The special aid which Their Majesties requested of Columbus was for the

clause of the treaty requiring that within ten months each party should dispatch one or two caravels or more, having on board pilots, astrologers and mariners, to proceed to the Cape Verde Islands, and measure off by leagues or degrees the allotted 370 leagues.

On April 15, 1495, Spain and Portugal made a new arrangement, postponing the joint expedition to trace the Line on the spot, and stipulating that in the month of July following, the appointed astrologers, pilots and mariners should meet in some place on the frontier of the two kingdoms, and then and there discuss and settle (theoretically) the question of the demarcation line. This being done, the expedition was to sail for the purpose of establishing the limit according to the ruling of those scientific commissioners, within ten months after one of the contracting parties had served notice on the other to that effect.[88]

Their Catholic Majesties then caused

a royal order to be drafted commanding that meanwhile ("mientras") the Demarcation Line should be inscribed in all sailing charts.[89]

Those experts never met, the expedition was not sent, even the order given to cartographers to trace the boundary line on maps remained a dead letter, and nothing more was said about the matter for at least ten years.[90]

Columbus did not return to Spain until June 11, 1496. It is not known whether he ever replied to Their Majesties' letter of August 16, 1494. If he did, we may rest assured that he protested energetically against the grant of 270 leagues additional which they made to Portugal by the Treaty of Tordesillas. Columbus never assented to an extension of the boundary line beyond the 100 leagues set forth in the Papal Bull of May 4. This is shown by the fact that in the entail created February 22, 1498, four years after the signing of the treaty, he says :

"And it pleased Their Highnesses to appoint me their Admiral of the Ocean sea, beyond an imaginary line which they ordered to be drawn from Pole to Pole, 100 leagues from the islands of Cape Verde and those of the Azores;" thus ignoring the 270 leagues additional granted by Spain to Portugal[91] in 1494.

In his will executed at Segovia, August 25, 1505, and confirmed almost *in articulo mortis*, May 19, 1506, that description of the Line of Demarcation is repeated word for word. Well may we say, therefore, that Columbus never recognized the Treaty of Tordesillas, which Ferdinand and Isabella should not have signed without first reserving his rights under the Capitulations of 1492. He lived long enough to see himself deprived in consequence of his share of the profits derived from Brazil, and even from Newfoundland, which Gaspar Corte-Real wantonly inscribed in his maps as within the transatlantic dominions of Portugal.

XI.

SPANISH INTERPRETATION OF THE TREATY OF TORDESILLAS.

The first thing to notice in the Treaty of Tordesillas, is that the Line of Demarcation was fixed 270 leagues further west than the meridian traced in the Bull of May 4, and that the 370 leagues (now being the entire space allotted to Portugal) were to be counted, not as in said Bull, from the Azores and Cape Verde, but from the Cape Verde Islands. Unfortunately, the treaty failed to state whether the reckoning was to commence with the most easterly, the most westerly, or the central island in the archipelago. Since the group extends in longitude nearly three degrees (22° 45′—25° 25′),[92] this omission became

the source of difficulties between Spain and Portugal, which, to a certain extent, may be said to exist still. It is true that by the Treaty of Madrid, signed January 13, 1750, the two nations set aside the divisional line of 1494, and even resolved that the laying down of imaginary lines of demarcation should be entirely renounced; but only a year afterwards, February 12, 1761, that treaty was annulled.[93]

The next thing to consider is the difficulty of determining with accuracy the real boundary, or terminal point westwards of those 370 leagues. If English or American cosmographers, for instance, were called upon to-day to fix on a map the western boundary of the Atlantic dominions of Portugal, according to the general terms of the Treaty of Tordesillas, the principal difficulty would be easily removed, because we all agree as regards the exact circumference of the globe and precise length of a marine league, in yards and in metres, from actual

measurements, made methodically, and with perfect instruments.

But the old cosmographers, for the period extending from the discovery of America to the Badajoz Junta (1524), assign $14\frac{1}{6}$ leagues, 15 leagues, $16\frac{2}{3}$ leagues, $17\frac{1}{2}$ leagues, and even $21\frac{7}{8}$ leagues to a degree on the equator; owing chiefly to various estimates of the size of a degree, and of the dimensions of the earth. Hence the different locations of a line of demarcation on nearly all the maps of the period; hence too the discussions which yet continue as to its true meridian.

It seems to us that the question has not been considered in its proper light. The first point to examine should have been the intention and purpose of the parties in making the treaty, as well as the geographical and metrological notions which they then entertained. In other words, what must be determined is *the character and extent of the concession which Spain meant to make when*,

by the Treaty of Tordesillas, she granted the 270 leagues additional to Portugal, and what the latter power believed it was receiving.

In an investigation of this character the critic should interrogate above all the cosmographers of the end of the fifteenth century, particularly those who were consulted by Ferdinand and Isabella in 1494. Whether their idea of the length of a league, or of a degree, or of the circumference of the earth was, in itself, right or wrong, is of little moment in the inquiry. If by means of the data furnished by those experts we can ascertain what circumference they ascribed to the earth, the longitude from which, in their estimation, the 370 leagues were to be counted westwards, the length of their league, and reduce their itinerary measures to yards or to metres, that is sufficient to solve the problem.

We possess, fortunately, the opinion of the leading expert whose advice was

asked on this occasion by the Catholic Sovereigns and Cardinal Mendoza, and in whose science they placed the utmost confidence: Jaime Ferrer, of Blanes, in Catalonia.[94]

So early as August 26, 1493, he was requested to repair at once to Barcelona with his mappamundi and cosmographical instruments.[95] Conferences were held with his sovereigns, the details of which, however, have not reached us. But soon after the Treaty of Tordesillas had been signed, Ferdinand and Isabella twice submitted it to him, and asked his written opinion relative to the Line of Demarcation. On January 27, 1495, he sent them in reply his views on the subject, together with "a globe and description of the world on a plane surface, in which could be seen the two hemispheres."[96]

On February 28, following, Their Majesties expressed their thanks, and requested him to come to the Court by the end of May. It was doubtless shortly

afterwards that Ferrer drafted the elaborate *Parer*, wherein he not only gives his conclusions regarding the value of the 370 leagues, but also the method which he followed, and the data upon which he based his calculations.

XII.

FERRER'S THEORY.

We shall now proceed to quote from the technical opinion written by Jaime Ferrer in 1495 at the request of Ferdinand and Isabella, the data required to ascertain his geodetic theories, and how he applied them to the determination of the Line of Demarcation under the Treaty of Tordesillas.

1st. "The 370 leagues must be counted from the most central of the islands in the group of the Cape Verde Islands.

2nd. "Each degree in that parallel (15°) comprises 20 leagues and $\frac{5}{8}$.

3rd. "It is necessary to count each degree as equal to 700 stades,[97] according

to Strabo, Alfragano, Teodoci, Macrobi,[98] Ambrosi, Euristenes.[99]

4th. "The 370 leagues [counted from the middle island in the Cape Verde archipelago] comprise westward 18 degrees.

5th. "Each degree in the Tropics is equal to 20 leagues and four parts of 360.

6th. "In the equinoctial circle, each degree is equivalent to 21 leagues and $\frac{5}{8}$.

7th. "According to Strabo, Alfragano, Ambrosius, Theodosius, Macrobius, and Eratosthenes, the circumference of the earth is 252,000 stades, which 252,000 stades, at the rate of 8 stades per mile, equal 31,500 miles, which, in counting 4 miles for each league, equal 7,875 leagues." [100]

Ferrer's above stated data result in four different lengths for his league, viz.: $21^{l},353$; $21^{l},813$; $21^{l},625$; and $21^{l},875$ to the degree of the Equator of his sphere. For reasons given in our notes,[101] we select from among these four valua-

tions, $21^{1},875$ to his equatorial degree, upon which to base our calculations.

The probability is that if the scientific experts of Spain and Portugal had ever met according to the cedula of April 15, 1495, and come to terms, they would have taken as a basis Ferrer's data, with the exception of the starting point, which Portugal would have doubtless insisted on fixing in the westernmost cape of the island of San Antonio, making, however, a difference of only a degree and a half.

As at that time the New World was supposed to commence with Hispaniola, in our 70° 45′ west, leaving a margin of more than 27° on that parallel before Portugal could reach the newly-discovered regions (no one suspecting then that south of the Antilles there was a continent stretching eastwards as far as 37° longitude), it is likely that Spain would have yielded the point.

But whether, after accepting the basis, those experts would have been able to

locate with any accuracy the demarcation line is another question! Their means of reckoning longitudes,—always a very delicate and difficult operation, even at this day,—were so crude and imperfect, that half a century afterwards we still see Sebastian Cabot, the Pilot-Major of Spain, recommend to Philip II. a method of his own invention for taking the longitude at sea, which, if ever applied, would have caused errors actually amounting to sixty degrees, that is, one-sixth of the circumference of the globe![102]

If now, with the elements furnished by Ferrer, we reconstruct his sphere, and insert therein the geographical discoveries which were accomplished by the Spaniards in the five years following the Treaty of Tordesillas, that is, the coast-line extending from Cape St. Augustin to the Gulf of Venezuela, the result is as follows:

Ferrer's starting meridian is Fogo, in 15° latitude, making his league in that parallel, *on his sphere*, equal to 20° 625.

370 of his leagues lead therefore to a meridian which, *on his sphere*, lies 17° 31′ west of Fogo. Taking, however, his round figure of 18°, the Line of Demarcation, according to his estimate, would have passed in 42° 25′ west of Greenwich, *on his sphere*. That is, about 75 miles east of the Maranhão, and 10 miles west of the Rio Paranahyba. On the south coast of Brazil, it would have passed about 23 miles west of Cape Frio, and 40 miles east of Rio de Janeiro.

That sphere, naturally, owing to inaccurate dimensions, did not correspond with the reality of things. Yet it sufficed to enable the Catholic Sovereigns to form an idea of the extent of the concession which they intended to make to Portugal in granting to her 370 leagues (100 + 270) west of the Cape Verde Islands. It is evident that the liberality of Ferdinand and Isabella must have been proportioned to the importance which they ascribed to their trans-

atlantic dominions. Had it been greater in their estimation, the gift probably would have been larger; if smaller, proportionally less. Under this aspect of the case, it is curious to notice that the grant intended to be made to Portugal in 1494 conveyed an extent of country 520 miles in longitude smaller than the space ascribed to her "by virtue of the Treaty of Tordesillas," in such charts, for instance, as those of Diego Ribeiro, the chief cartographer of Charles V.

Let us now endeavour to ascertain where Ferrer's line of demarcation would fall *on our actual sphere*.

Ferrer ascribed to the earth a circumference equal to 48,452,040 metres, instead of 40,000,000 metres, which is the actual measurement. In other words, Ferrer increased the circumference of the terrestrial globe by about $\frac{1}{5}$.

Ferrer's 370 leagues, counted on the parallel of 15° N., amount to $409\frac{1}{2}$,960 of our marine leagues of 20 to a degree of the equator. Taking 24° 25′ W. for

the longitude of Fogo, Ferrer's scientific notions and inferences result in a meridian which corresponds *on our sphere* with 45° 37′ W. of Greenwich. This meridian cuts the north Brazilian coast *on our sphere*, between the bays of Maracasumé and Piracaua, 85 miles west of the entrance of the Maranhão, and 120 miles east of the Para river, and on the south, about 150 miles west of Rio de Janeiro, and about 25 miles east of Santos.

XIII.

THE FIRST TRACING OF THE DEMARCATION LINE.

At the present juncture, it is important to ascertain whether Ferrer's estimate was adhered to when Spain commenced to trace the divisional line on her maps. Unfortunately, although mappamundi and sailing charts were constructed in great numbers by the cosmographers and pilots of the Crown, particularly in the Casa de Contratacion at Seville, we do not possess any of those Spanish maps for the twenty-five years which followed the Treaty of Tordesillas, with the exception of the planisphere of Juan de la Cosa,[103] Columbus's own pilot, and professor of Hydrography at Cadiz; but although constructed so late as 1500, it omits the Line altogether.

Yet the discoveries accomplished in the New World from the year 1494 certainly required to be indicated. As it is, the celebrated Basque cartographer not only depicts the elbow formed by the north-east coast of the South American continent, but he refers to the discovery of Brazil by Cabral, the news of which had just been brought to Portugal by Gaspar de Lemos. Is it that so late as the year 1500 Spain was not yet convinced that, according to the Treaty of Tordesillas, the Brazilian regions were within the transatlantic dominions of Portugal?

No Portuguese map of the fifteenth century representing the New World has reached us. But we may take it for granted that as soon as the discoveries of Vincente Yañez Pinzon and of Diego de Lepe made known the projection eastwards of the South American continent far beyond the longitude of the easternmost West India island, the Lusitanian cartographers at least marked the

Demarcation Line on their planispheres. This became absolutely necessary shortly afterwards, when Pedro Alvarez Cabral, April 22, 1500, planted the flag of Portugal in the Land of Parrots, or of the True Cross, now called Brazil.

The earliest map known exhibiting that divisional line is the celebrated Portuguese mappemonde ordered for Hercules d'Este, Duke of Ferrara, and which we named after Alberto Cantino, who caused it to be executed. It is not, however, an original chart,—we do not possess a single original chart of the time,—but a copy made at Lisbon in 1502, from a model which has been the prototype of what we have termed the Lusitano-Germanic Cartography.[104] Thus it is that nearly all the globes and mappemondes constructed outside of Spain during the first quarter of the sixteenth century, and which exhibit the Demarcation Line, borrow it from the model of the Cantino map, or from one of its derivatives.[105]

When we first reproduced and analyzed that most curious and important planisphere, in 1883, we endeavoured to determine its geographical positions according to the geodetic data afforded by the map itself. This resulted in placing the Demarcation Line in that map 480 of its leagues west of the most westerly of the Cape Verde Islands. Applied to our admiralty charts, this distance places the divisional meridian in 57° 30′.

But if, throwing aside the metrology of Cantino's cartographer, which is clearly erroneous, because, as suspected, the width of the Atlantic Ocean has been diminished for cartographical convenience, we resort only to the configurations and legends on the map, the result is very different. The Line, therein called *Marco dantre Castella et Portugall*, cuts the north coast of the South American continent just midway between a point in the apex of the elbow corresponding to our Cape St. Roque and a large estuary, facing which on the

high sea we read: "*Todo este mar he de aguá doçe*" (All this [part of the] sea is fresh water), and which continues inland as a river called *Rio grande*. This can only be the *Rio grande de la mar dulce* of Vincente Yañez Pinzon, discovered in the two years previous to the making of Cantino's map. But the Line is much nearer another large estuary, eastward from that *Rio grande*, or Amazona. And this large estuary, with its river, can only be the Maranhão, so far as its geographical appearance in that map is concerned.

It follows that in the opinion of Portuguese cartographers, at the beginning of the sixteenth century, the Line of Demarcation was supposed to pass in about 42° 30′ *on our sphere*.[106]

XIV.

THE THEORY OF ENCISO.

THE Line of Demarcation continued to engross the thoughts of the Spanish government, as we know that Sebastian Cabot, Juan Vespuccius and other pilots, drafted on November 13, 1515, a *Parecer* on the subject.[107] This we have not been able to discover, and the "Suma," or geographical compendium, published by Martin Fernandez de Enciso at Seville in 1518,[108] afforded the first data for forming an estimate of the opinion entertained by the Spanish cosmographers on the subject, at the beginning of the reign of Charles V. What had been their geodetic methods and computations since the time of Ferrer, through what modifications they passed, and where

between Cape St. Augustine and the Puerto de las Higueras, which Enciso says was the western limit reached in his days, the Sevillian cartographers inscribed the Demarcation Line, is a problem yet to be solved. But something useful will be attained, if we succeed in ascertaining the basis on which, after the Treaty of Tordesillas and before the Badajoz Junta, they established their calculations. In this respect, the work of Enciso, who was both a learned cosmographer and traveller in the New World, deserves to be examined with attention.

The data set forth by Enciso are, verbatim, as follows :

1st. " The Equator contains in longitude three hundred and sixty degrees of sixteen leagues and a half each. [109]

2nd. " As each degree is estimated to be in length sixteen leagues and a half and one-sixth, the circumference of the entire globe is three hundred and sixty degrees, amounting to six thousand leagues.

3rd. "From the island of San Thome to the Port of Higueras, there are one hundred and seventeen degrees, which amount to one thousand nine hundred and fifty leagues.[110]

4th. "From Fuego Island to Cape St. Augustine there are four hundred leagues,[111] and Cape St. Augustine is in 8° on the other side of the equator."

In the notes appended will be found [112] the reasons and computations on which we base our interpretation of Enciso's data, which, geodetically, may be summed up in these words:

In Enciso's sphere, the value of the Equatorial degree was 16 leagues, 666, and the circumference of the earth equal to 36,915,840 metres, against 40,000,000 metres, which is its actual circumference.

Enciso's equatorial degree contained 18,0498 of his leagues.

The circumference of his sphere is 0,077 smaller than the circumference of our sphere; whilst the circumference of

Ferrer's sphere was 0,211 greater than that of our sphere. The difference between Enciso's and Ferrer's valuation in this respect, shows, to a certain extent, the geodetic progress accomplished in Spain between the years 1495 and 1518. It will also serve to explain the position of the Line of Demarcation in Enciso's sphere, and why it differs from the position in Ferrer's.

Enciso places the divisional line 370 of his leagues (= 409^{l},960 of 20 to a degree) west of Fogo on the parallel of 15° on his sphere; that is, on the latter, in 47° 24′ W. of Greenwich (22° 59′ + 24° 25′).

If we adopt for *our sphere* the longitude of the Line of Demarcation such as it is determined *on Enciso's sphere* according to his own data, as the longitudes are the same on those two concentric spheres, this meridian passes on *our sphere* 444^{l},036 (of our leagues of 20 to a degree) west of Fogo, and cuts the north coast of Brazil in Salinas Bay, about thirty-five

miles east of the entrance of the Rio Para, and about 180 miles west of the Maranhão.

But if we determine the Line of Demarcation of Enciso by predicating it to be on our sphere as it is on his own, 370 of his leagues (409^{1},960 of 20 leagues to a degree) west of Fogo, this Line of Demarcation shall be the meridian of 45° 38′ west of Greenwich. It cuts the north coast of Brazil, in Maracasumé Bay, about 35 miles east of the entrance of the Rio Para, and about 180 miles west of the Maranhão.

We are fain to believe that Enciso put in practice his geodetic notions, and based his location of the Line upon mathematical results, as we have just done. At all events, besides the data which we have extracted from his "Suma" he sets forth geographical statements regarding the place where, on his sphere, the divisional line was located, viz. :

1st. From Cape St. Augustine to the

Rio Marañon there are three hundred of his leagues.

2nd. From this Rio Marañon to the river called the Mar Dulce, there are twenty-five leagues.

3rd. The limit between Spain and Portugal is three hundred and seventy leagues west of Fogo, terminating, on the continent, between the Rio Marañon and the Mar Dulce.

4th. That limit is near the Mar Dulce.

It remains to be ascertained whether these broad statements of Enciso agree with his hydrographical data; and, if not, which of those elements of discussion the critic must select to solve the problem.

XV.

WHAT IS THE RIVER MARAÑON?

As we have just seen, Enciso states that the terminus westwards of the 270 leagues additional conceded by Spain to Portugal in 1494, stood "between the Rio Marañon and the Rio de la Mar Dulce, but near the latter."

Strange as it may seem, the gist of the entire question is in that single word "Marañon," not only as regards Enciso, but with all the cosmographers, statesmen and historians of the first half, at least, of the sixteenth century.

To comprehend the exact bearing of the statement, we must first group, in chronological order, the earliest notices known of the "Mar Dulce" and of the "Marañon." These notices also require

to be subdivided into two sections, viz. : written or verbal statements, and cartographical delineations.

The first official mention is contained in the letters patent granted to Vincente Yañez Pinzon for a second expedition, September 5, 1501, in which Ferdinand and Isabella say to him :

" You have discovered certain islands and firm land to which you gave the following names : *Santa Maria de la Consolaçion* and *Rostro hermoso;* thence, in ranging the coast north-westerly, the large river which you named *Santa Maria de la Mar Dulce*, with the islands within the mouth of the said river, called *Marina tambula.*" [113]

The next mention is in Peter Martyr's first description of the discovery, written only one year after the event :

" They [Vincente Yañez Pinzon and Arias Pinzon] found the sea to be of fresh water, and searching whence that fresh water came, they found an estuary which enters the sea fifteen leagues with

the greatest violence. In front of it, before reaching the sea, there are many islands. That region is called *Marinatabal.*" [114]

Peter Martyr repeated that account in the original Latin edition of his first Decade (Hispali, 1511), adding a detail which is of considerable importance, viz.: "The region in the east part of that river is called *Camomorus*, and the west part, *Paricora.*" [115]

Later on, in his letter to Lope Hurtado de Mendoza, December 18, 1513, he enlarged on the great stream in this wise: "After Columbus, the Spaniards, his rivals, have discovered many rivers . . . among which there is one of such extraordinary size that we find it difficult to believe that its like exists in nature. They pretend that it is eighty miles wide . . . and not a maritime gulf, since its waters are fresh. . . . Several have ascended the river in their caravels to a distance of fifty miles. Its native name is *Maragnon.*" [116]

This statement is corroborated in the edition of the Decades published in 1516, whilst the geographical details of the edition of 1511, are confirmed in the second Decade where he says: "The inhabitants call this river *Maragnon*, and the adjacent regions *Mariatambal*, *Camamorus* and *Paricora*."

We then find the data furnished by the discoverer himself to Oviedo, before 1514, but not made known by the latter until 1526, in these words:

"I have often heard the pilot Vincente Yañez Pinzon say that he was the first among Christians who saw the *Rio Maranon*, which he ascended in a caravel more than 20 leagues . . . and that 40 leagues in the sea, he took in fresh water from the said river."[117]

Nearly twenty years afterwards, Oviedo added the following information:

"He [Pinzon] told me that they landed in a province called *Mariatanbal*, which is within the coast of the *Marañon*, where there are many islands . . . and

that he collected on the high sea fresh water at a distance of thirty leagues from shore, owing to the force and fury with which that river enters the sea." [118]

The next point is to ascertain the names first assigned to the mighty stream. It is only through such an inquiry that the critic may hope to establish the identity existing between the various representations in maps (whatever may be their geographical positions therein) and the early descriptions which we have given of the famous river.

It has been already seen that Vincente Yañez Pinzon called it "Saint Mary of the Sea of Fresh Water," as we suppose, from his having probably discovered its estuary on the 25th of March, which is the day of the Annunciation of the Virgin Mary.[119]

This name was immediately abridged. Juan de la Cosa, less than three months after the return of Vincente Yañez Pinzon

to Spain,[120] already calls the wonderful river "Mar de agua doçe."

Peter Martyr, in his first description, as reported by Angelo Trevisan in a letter addressed December 1501, to Domenico Malipiero, fails to name the river. But everything tends to show that it was then generally called, as par excellence, "the Great River." In the maps of Cantino (1502), Canerio (1503), and Ruysch (1508), it is labelled "Rio grande;" and there can be no mistake regarding its identity, as in Canerio we read close to it: "todo este mar he de agua doçe." Peter Martyr himself, although aware of its native name "Marañon," inscribes the river in the map added to the first Latin edition of his first Decade as "rio grande."

In the great suit brought by the heirs of Columbus against the Spanish Crown, rogatory commissions (*Probanzas*) were executed at Seville and Santo Domingo. The sixth question was whether Vincente Yañez Pinzon in 1501 "had entered the

mouth of the great river whence came the fresh water which enters the sea."[121] A number of witnesses who had been with Pinzon in that voyage of discovery spoke in their depositions of the famous stream, but without giving it any other name than "El Rio Grande del agua dulze que entra en la mar" (the Great River of the fresh water which enters the sea). One, however, the pilot Juan Rodriguez (Diego de Lepe's brother) referred to "la costa en que entra el Rio Grande y el Maraño" (the coast in which enters the Great River and the Maraño). The verb used here in the singular indicates that "Rio Grande" and "Marañon" were terms used synonymously. This we find demonstrated still more explicitly by Luis del Valle, in his deposition of October 1, 1515, when he said: "fueron a dar al Rio Grande que se llama Marañon" (they went in quest of the Great River which is called Marañon). These two names were thus applied to the same river;

but "Rio de Santa Maria de la Mar Dulce" had been dropped, and replaced by the name "Marañon." This alteration is corroborated by Oviedo when he says of the Marañon that "for a time it was called Mar dulçe."[122]

Henceforth, in the current language of seamen the great river went only by the name of Marañon. Rodriguez de la Calba, Garcia Ferrando, Cristobal Garcia, Fernandez Colmenero, all companions of Pinzon or of Diego de Lepe, both of whom claimed to have discovered it, when interrogated in 1515, and describing its natural wonders, mention but one stream in that locality, and always call it "El Ryo Marañon."

XVI.

ENCISO'S GEOGRAPHICAL DESCRIPTION.

To sum up the preceding: There are on the north coast of the South American continent a river and its estuary, both so wonderful as to be considered unique in the world. They were discovered by Vicente Yañez Pinzon, and called *Rio de Santa Maria de la Mar Dulce*. This was abbreviated first into *Mar Dulce*, then into *Rio Grande*, and afterwards the river went by the name of *El Marañon*, which was its native name.

As to the stream, Enciso describes it as follows:

"This river, which is called the Sea of Fresh Water, hath 40 leagues in bredth at the mouth, and carieth such abundance of water that it entreth more than 20

leagues into the sea, and mingleth not itselfe with the salt water; this bredth goeth 25 leagues within the land, and after it is divided into partes, the one going towards the south-east, and the other towards the south-west. That which goeth towards the south east is very deepe and of much water, and hath a chanel ½ a league of breadth, that a carack may go up through it and the tydes be so swift that the ships have need of good cables."

This description answers exactly to that of the Amazona proper, and the identification is rendered still more precise by the name *Mar Dulce*. But Enciso singularly complicates the question when he states that the Line of Demarcation "lies between the Rio Marañon and the Mar Dulce, and near the Mar Dulce, which is 25 leagues distant from the Rio Marañon." In the opinion of that cosmographer, therefore, the Mar Dulce and the Marañon are two different rivers, and not one only like

the authorities quoted in the preceding chapter.

But what is this Marañon? It cannot be the Amazona, that being the Mar Dulce, which Enciso describes as being entirely distinct from the Marañon. A first thought identified it with the eastern mouth of the Amazona, now called the Para river, reasoning in this wise:

Enciso says that from the Rio Marañon to the river called Mar Dulce, there is a distance of 25 leagues. Twenty-five leagues of Enciso are equal to $27^{1},7$ of our leagues. If we carry these $27^{1},7$ along the coast of Brazil, from Cape Maguari, which is the western point of the entrance of the Rio Para, we reach the northern part of Mexiana island, in the middle of the great mouth of the Amazona. This would confirm, in a measure, Enciso's statement. But the hypothesis, which is so plausible at first sight, had to be abandoned, on account of the following objections:

Enciso states that the Mar Dulce at

its mouth is 60 leagues wide. Where can we find this enormous aperture, if its eastern mouth is subtracted from it, and ascribed to the Marañon, which Enciso describes as an entirely different river?[123] Nor can it be said that he meant to embrace in those 60 leagues the extent of the estuaries of the Amazona, together with the area of fresh water in the sea there, first, because his Marañon has an estuary of its own, which he says is "more than fifteen leagues wide;" then, because his Mar Dulce would no longer be 60 but 100 leagues broad, viz.: 60 for itself + 15 for the Marañon + 25 for the distance between these two rivers, according to his own calculation.

Further, we are not convinced that Enciso, or any navigator for many years afterwards knew of the existence of the eastern mouth of the Amazona or Para river. All the descriptions and statements which we have quoted draw no distinction whatever between the two entrances of the Amazona. They refer

to only one river there, which Peter Martyr writes[124] of as "more than eighty miles," and even "more than thirty leagues" wide;[125] whilst Pinzon himself speaks of "a width of forty leagues."[126] These different figures, together with the long omission in maps, as well as in written accounts, of any other river in the vicinity, prove that the navigators of the period had overlooked the entrance of the Para river. Oviedo is the first writer who describes the eastern mouth of the Amazona, and gives it a separate name, viz.: Rio de Navidad.[127] And this must have been done after 1536, as at that date no such name appears in the *Padron general*, or Government Model Chart of Chaves,[128] as described by Oviedo.

Let us also recollect the passage in Enciso's description of the Mar Dulce, where, after stating how wide it is even twenty-five leagues from its mouth, he adds that there the river is "divided into parts, the one going towards the south-east, and the other towards the

south-west." Had he known the exact topography of that region, he would have been aware of the fact that the south-east branch of the great stream likewise runs northward, and forms an estuary quite as wonderful as the western one.[129] This shows that in the days of Enciso only the western branch of the Amazona had been visited, and that by navigators who sighted, without entering, the waters which run eastwards and border the south part of Marajo Island.

Finally, if Enciso's Marañon was the eastern mouth of the Amazona, the Line of Demarcation would no longer lie in 47° 24′ on his sphere, and 47° 24′ or 45° 38′ on our own (according to the method adopted to determine this Line of Demarcation, viz.: either by its longitude on Enciso's sphere, or by placing it 370 of Enciso's leagues west of Fogo) as must be inferred from the data extracted from his "Suma," but between 49° and 50° on our sphere, and of course on his sphere, as both spheres are concentrical.

Is it that Enciso had in view not the Marañon or Mar Dulce at all, but the maritime region, situate east of the eastern branch of the Amazona, and designated on our maps under the name of "Maranhão"?

XVII.

THE MARAÑON AND THE MARANHÃO.

At the outset, the reader should spread before his eyes a modern chart of South America, and notice on the north coast of Brazil, in 45° longitude west, a fluvial region, including a gulf, called *Maranhão* or *Maranham*. At the same time he must observe, 5° west of it, the mouths of the Amazona river.[130]

We possess six maps of the first half of the sixteenth century, which all set forth, in the same longitude, on the north coast of the South American continent, a very large river entering the ocean, and called *Maranhon* and *Marañon*. These are :

The Mantua Planisphere (1525).
The Laurentiana mappamundi (1526).
The Anonymous Weimar map (1527).

The two Ribeiros (1529).
Wolfenbüttel B. (*circa* 1530).[131]

A remarkable peculiarity in that class of maps is the position assigned to the mouths and entire basin of the river called therein Marañon. It corresponds with the locality of the Gulf of Maranhão in modern charts. Although *Marañon* and *Maranhão* (or Maranham) are names which greatly resemble each other, they belong in fact to regions entirely different and far apart. Yet it is incontestable that the makers of those maps,—which are all of Sevillian origin,—had in view, exclusively, not the Gulf of Maranhão, but the Mar Dulce of Pinzon, or real Amazona. This is shown by the delineation in the Weimar map of 1527, where the river is represented as being of immense size, extending over twenty degrees of latitude, and issuing out of very high mountains; by the total absence in that class of maps of any other large river west of their Marañon; by the west coast of the latter being labelled

"Costa de Paricura"; [132] and especially by the legend inscribed in the Ribeiro of Weimar under the representation of the great stream: "The river Marañon is very large, and ships enter it in fresh waters, which they [first find] 20 leagues in the sea." [133]

It is scarcely necessary to say that in nature the Maranhão and its adjoining parts do not present any of the hydrographical characteristics of the Rio de la Mar Dulce of Pinzon, or of the Marañon of Peter Martyr and even of Ribeiro himself. Those characteristics, as reported by Pinzon, and corroborated by the professional experience of seamen, are among the most noted phenomena in nature, viz: Fresh water found on the high sea at such a great distance from the mouths of the river, and the tidal wonder, called by the Indians *Pro-roroca*, which suddenly puts ships in the greatest danger of being wrecked.

The rivers which fall into the gulf of Maranhão, viz.: the Paranahyba, the

Tapicura, the Monim, and the Mearim, are secondary streams, and the body of water which they discharge is scarcely felt in the sea, which remains salt almost to the shores of the gulf.[134]

Nowhere, except in the region extending from Caviana Island to the Carapaporis Channel, that is, more than eighty leagues west of the Maranhão region, is the *prororoca* ever felt.[135] Indeed, it is a question whether the name of *paricura* given still by the natives to the western border of the Amazona, is not another term for the phenomenon. If so, it would be one more proof that this characteristic belongs to a maritime region different from the Gulf of Maranhão.

These facts force upon us the conviction that the early Spanish cosmographers have inscribed by mistake the Rio de la Mar Dulce, or real Marañon, in the longitude and place of the Maranhão. Whether the error originated with the latter name having been given

originally by the natives to the gulf now so called, or with a cartographical misconception dating very far back, and constantly repeated, as was so often the case in those days, we are unable to say.

One thing is certain, viz., that at an early period there were Spanish maps, now lost, which also exhibited a Marañon where afterwards was located the Maranhão. But in the opinion of their makers it was not intended to supplant the Rio de la Mar Dulce or Amazona; for in that class of maps they set forth at the same time about five degrees west of the pseudo-Marañon, or Maranhão of to-day, fluvial delineations intended expressly to represent Pinzon's great stream. This is shown by the Italian Maggiolo map of 1519, which, for its southern regions, is clearly based upon a Spanish chart.

In that valuable Italian map, besides the Marañon,[136] inscribed in a locality which corresponds with that of the Maranhão, Maggiolo has delineated

west of it, at a certain distance, a very extensive estuary, dotted with islands, and bearing the inscription: "La mar dolce," which is the abbreviated form of the name given by Pinzon to the great river which he had discovered. Further, the western banks of it are called "Costa de Paricura," which, as we have seen, Peter Martyr says positively [137] was the name of the region commencing with the western border of that river. The identification therefore is complete.

To revert to Enciso. He evidently wrote his "Suma" with a map before him, and the date of this work, together with the fact that he makes of the Marañon and Mar Dulce two different streams, lead to the belief that this map was akin to Maggiolo's prototype. If so, it likewise represented the pseudo-Marañon in or about the longitude where the Maranhão is inscribed in our admiralty chart, and at a certain distance west of it could also be seen a very large aperture dotted with islands, duly labelled

"Mar Dulce," and, doubtless, near the latter the Line of Demarcation. Thus can we account for Enciso's statement that the divisional line is "between the Rio Marañon and the Mar Dulce, in the proximity of the Mar Dulce." We are constrained, therefore, to interpret his Marañon as meaning the Maranhão, and the Mar Dulce as intended for what is now called the Amazona.

But the distance between these two rivers is, in reality, five degrees, equal to 100 leagues; whilst Enciso's "Suma" states that the Mar Dulce is only 25 leagues distant from the Marañon. This latter figure may but be a typographical error in the book; and just as in its description of the distance between San Thome and the Port of Higueras the "Suma" prints 57° instead of 117°, and 950 leagues instead of 1,950, so it gives here for the distance between the Mar Dulce and the Marañon 25 instead of 75 leagues.[138]

On the other hand it must be stated

that Enciso's hydrographical data do not agree with this hypothesis of ours. These constrain us to place the Line of Demarcation, *on his sphere*, in 47° 24′; which, when transferred to our sphere, yield the longitude of 45° 38′; whilst the theory of an error of 50 leagues in the statement of the "Suma" (25 instead of 75) would carry the Line of Demarcation about two degrees further west. But we feel convinced that Enciso did not base his statements upon geodetic data collected previously. In other words, he borrowed his distances only from the map which was spread before him. When we notice how erroneous are the longitudes and meridians in all the charts of the time, our supposition may well serve to explain the discrepancies which we have noted in Enciso's statements, independently of typographical errors in his "Suma."

XVIII.

SPANISH RULING AT BADAJOZ.

JUDGING from Enciso's statement that the divisional line "was near the Mar Dulce," and from the place assigned to that Line in the first Portuguese [189] and Spanish maps which exhibit it, we are led to infer that its true location was then universally believed to be east of the Amazona river, and in its proximity. How near exactly is a question which, as we have already said, never was and can never be settled. But we may retrace the genesis, so to speak, of its delineation by its appearance in the early Spanish charts.

It is probable that the location of the dividing Line remained for a number of years in those maps, and, apparently,

in the *Padron general*, or model chart, where we understand Enciso to have placed it. The position was unmistakable, being close to the vast estuary called the Sea of Fresh Water. The technical statements of cosmographers, however, as regards its longitude, were doubtless erroneous and shifting, according to their geodetic theories, which may not have been precisely the same for all and at all times.

Withal, the question did not lie dormant with the Spaniards, both as regards the East and West. We possess a letter from Alonzo de Zuazo, in which, so early as January 22, 1518, he called the attention of Charles V. to his rights in the matter. It seems that Zuazo had undertaken to ascertain scientifically where the Line of Demarcation actually passed.

"While tracing the lines, says he, I found that Your Majesty was suffering great wrongs in the mainlands of Brazil. From Cape St. Augustine, thirty

leagues at most may belong to the King of Portugal; yet he possesses more than two hundred, from which he receives annually more than twenty thousand ducats in dye wood (*brazil*) and slaves. I, to ascertain the fact, sent at my own cost a pilot to the said Cape, and found that its position on the maps exceeded by a hundred and thirty leagues what it should be eastwards [*sic pro* westwards ?]" [140]

Zuazo then refers to the Spice Islands in this wise:

"There is another secret. In the East, Portugal possesses much which belongs to Your Majesty. Even the City of Malaca, which has 25,000 inhabitants, belongs to you." [141]

Zuazo's statements are erroneous in more than one respect, and he did not see that it was impossible to carry the Demarcation Line further eastwards in Brazil without making it recede proportionately from the Moluccas.

The discovery accomplished by Ma-

gellan, the year following, by giving Spain a route to the Spice Islands, gave a new impetus to the question. Until then a difference of three or four degrees in favour of Portugal was practically of little importance. No settlement had yet been attempted in or about that part of the north coast of South America where the partition line was supposed to pass.[142] Now the question involved the ownership of the Spice Islands, and it became a serious matter to know with certainty whether they lay within or without the space granted by the Treaty of Tordesillas to the Portuguese Crown, as the Line of Demarcation was intended to encircle the entire globe. Hence a conflict which the two rival nations endeavoured to settle in 1523-1524, by what is called the Badajoz Junta.

This new phase of the controversy will form the subject of the *Second Chapter* of our "Diplomatic History." But we are constrained to anticipate some

of its details in order to account for the position assigned to the dividing Line in the Spanish maps and charts of the time which have come down to us.

We do not possess, unfortunately, for that period, a theoretical treatise, like Enciso's "Suma," to determine the basis on which Spanish maps were constructed between 1518 and 1524.[143] For the five years following, we can only interrogate the "Pareceres," or scientific opinions presented to the Junta on behalf of Spain.

The first was delivered April 13, 1524, by Fernando Columbus, the illegitimate son of the great navigator, and leading member of the commission.

He commences by declaring that, above all, it was necessary to determine the size of the globe, the length of the league, and how many Spanish leagues of four miles constitute a degree. But that being a most difficult thing to ascertain, a choice should be made between the dicta of cosmographers. In accord-

ance with that suggestion, he proposes to reject the opinion current on the subject in the time of Aristotle, as well as the opinions of Strabo, Macrobius, Eratosthenes, Maximus and Ptolemy. The estimate which must be adopted, he says, is that of "Tebit, Almeon and Alfragan, which was followed by Pedro de Aliaco, Juan de Pecan, and Christopher Columbus, as shown in many of his writings; all of whom give to each degree 56 miles and $\frac{2}{3}$, equal to 14 leagues and $\frac{2}{3}$ of a mile, and assign to the globe a circumference of 5,100 leagues."

Fernando then confesses that the geodetic results thus obtained will have to be verified by taking the longitudes. To that effect, he proposes five different methods,[144] a majority of which are, for reliance, on a par with those advocated by Sebastian Cabot.[145]

No vote was taken on that proposition, which we have quoted simply to show the opinion advanced by the leading member of the Junta. It is now neces-

sary to set forth and discuss the basis upon which the scientific experts[146] of Spain at Badajoz intended to settle the question of the Demarcation Line.

On the proposition of Thomas Duran, Sebastian Cabot and Juan Vespuccius,—

1st. The degree was to be considered equal to $17\frac{1}{2}$ leagues, embracing $62\frac{1}{2}$ miles.[147]

2nd. The league contained 4 miles, one mile contained 8 stades, and there were 500 stades to a degree[148] "according to Ptolemy."[149]

3rd. The starting meridian of the 370 leagues westward was to be the centre of the island of Sant Antonio (the easternmost of the Cape Verde Islands).[150]

4th. These 370 leagues in that parallel were calculated to be equal to 22 degrees and nearly 9 miles.[151]

These measurements we find to give to *their globe* a circumference of 38,759,728 metres, which is 31-thousandths less than the real circumference of the earth (viz., 40,000,000 metres).

On the basis adopted by those cosmographers, the Line of Demarcation would cut the north coast of South America, *on their sphere*, in 47° 17′ west of Greenwich. That is two miles east of Atalaya Point, which is the eastern point of Salinas Bay, about 45 miles east of the entrance of the Rio Para, and about 210 miles west of the entrance of the Rio Maranhão.

But *on our sphere* their calculations for the location of the Line would correspond with 46° 36′ west of Greenwich. That is, it cuts the north coast of Brazil in Priatinga Bay from 80 to 90 miles east of the entrance of the Rio Para, and about 160 miles west of the entrance of the Rio Maranhão.

The Badajoz Junta, as is well known, failed to come to an agreement owing to the Portuguese experts, who could not overcome this dilemma: If the Line was pushed more to the west, Portugal would gain a greater part of Brazil; but she might lose all rights over the

Moluccas, as the Line, of course, had to be carried to the other hemisphere as well.

Finally, a treaty was signed at Saragossa, April 15, 1529, which fixed a line of demarcation 17°, or 297 leagues, east of the Molucca Islands, regardless of all the consequences of such a computation, as nothing was said concerning the location of the Line in the New World. If the circle had been logically carried out, the dividing meridian would have cut the north coast of the South American continent *on their sphere* in 35° 40′ west of Greenwich, and *on our own* in 34° 34′ west of Greenwich;[152] that is, in the open sea, 13 miles east of Cape Branco, thus excluding Portugal from any and all parts of the South American continent.

But, as the matter stood, Spain and Portugal remained, regarding the location of the Line in America, precisely where they were on the day when the Treaty of Tordesillas was signed in 1494.

XIX.

THE DEMARCATION LINE IN SPANISH MAPS.

FROM what precedes, historians should bear in mind that the various positions assigned to the Demarcation Line in all the Spanish maps of the sixteenth century are not based upon further concessions on the part of Spain, or fresh compromises with Portugal. This is shown particularly by the Ribeiro planispheres, which, although dated 1529, state explicitly that they were drawn "in conformity with the Treaty of Tordesillas of 1494,"[153] and yet locate the line in a place different from that which should result from the geodetic data of Ferrer and of Enciso.

The different locations, therefore, have no other basis than the opinions or theories

of cosmographers,—endorsed, doubtless, by the Casa de Contratacion. Even in admitting that the Spanish scientists extracted their geographical tracings, longitudes and latitudes from the *Padron General*, these cosmographical assertions being *ex parte*, so to speak, can be invoked only to show the interpretation of Spain on the subject when the maps were made, and their value, therefore, is merely historical.

The earliest Spanish maps known which exhibit the dividing meridian are, in the order of dates, the following[154]:

(A)	The Mantua Planisphere	1525[155]
(B)	The Laurentiana „	1525[156]
(C)	The Anonymous Weimar Planisphere	1527[157]
(D)	The Ribeiro of the Propoganda	1529[158]
(E)	The Ribeiro of Weimar .	1529[159]
(F)	The Propaganda Anonymous Mappamundi .	1529[160]
(G)	Wolfenbüttel B. . . .	1530[161]

These are all derived from the same prototype, which, from their origin,[162] we believe to have been the "Padron Real" or "General."

In all of these, the geographical configuration of the north coast of South America is identical. That is, it exhibits, as already said, the features appertaining to the Amazona, but erroneously transferred to the Maranhão, whilst no large river is depicted to the west of the latter for a considerable distance.

As to the Demarcation Line, it cuts the coast at the north across a locality called therein "Furna grande" (the large cove), which is depicted without any fluvial characteristics. At the south the Line passes through Cape Santa Maria. Leaving out the latter datum, which is an impossibility, we find that Ribeiro's "Furna grande" is situate 18° west of his Cape San Roque, and on his parallel of 5° south latitude. A practical method of ascertaining where in reality Ribeiro intended to locate the Line of

Demarcation would be to transfer his geographical delineations to a modern map, if they were not so vague and so inexact in that part of the coast. Our impression, however, is that his "Furna grande" corresponds with the western mouth of the Amazona, in about 48° 30′, on our sphere.[163]

XX.

THE OFFICIAL MODEL MAP.

It is now known that as far back as 1508, the Spanish government ordered the construction of a model chart, called "Padron Real," and afterwards "Padron General." It was to be clothed with an official character, and no pilot in Spain was permitted to use any other[164] when sailing to the West Indies and American continent.

With the progress of geography and navigation, that map was found to be unreliable, and Fernando Columbus and Diego Ribeiro were commissioned in 1526[165] to construct a new one. Ribeiro died in 1533 without having accomplished his task.[166]

On May 20, 1535, Queen Isabella, acting as regent in the absence of her husband,

Charles V., ordered Fernando Columbus to proceed at once with the work. The probability is that upon receiving the royal order, he directed Alonso de Chaves who, since 1528, was Pilot and Cosmographer to His Majesty, and Master Map-maker, to activate the undertaking, in conjunction, however, with his colleagues of the Casa de Contratacion.[167]

At the present stage of the discussion it is important to ascertain where the divisional line was placed in that map. Unfortunately this document has long since disappeared. But we possess a description written by Oviedo, the official Chronicler of the Indies, which may enable us to retrace its delineations and nomenclature. Yet the critic, before availing himself of these geographical details, must bear in mind that although Oviedo wrote his description with the map of Chaves before him, he made use of other data, among which should be noted the information conveyed to him verbally by Alonso de Santa Cruz.

Further, the chapter of the "Historia General de las Indias" containing that description was not written until 1548, and it is certain from Oviedo's references to the exploration of the Amazona river by Francisco de Orellana in 1541-42, that he has likewise used statements made by that courageous adventurer. These various elements, far from weakening the authority of Oviedo in that respect, rather enhance it.

The first characteristic of the map of Chaves is that its nomenclature, as set forth by Oviedo for the north coast of South America, differs materially from the lists in the Weimar maps and in their derivatives for a number of years.

From Cape St. Augustine westwards along the coast, Oviedo inscribes thirty names,[168] the last of which is the "Rio Marañon," intended not for the Maranhão, but for the real Marañon, formerly called Rio de la Mar Dulce, and now the Amazona, as is easily seen from his description, viz. :

"The Cape of Slaves [*Cabo de Esclavos*] lies at the extremity of the mouth of the Rio Marañon, which does not enter the sea by one arm only, as will be shown further on where there is a description of the voyage made over it by Francisco de Orellana. The waters of that river rush into the sea with great impetuosity, and at a distance of ten or twelve leagues in the sea fresh water is still found. The river there has two principal branches; the easternmost is called the River of the Nativity [Rio de Navidad], whilst the westernmost branch retains the proper name of Marañon. . . . That river is very remarkable and pointed out in cosmographical representations, on account of its size. From Cape St. Augustine to the river Marañon there are three hundred and fifty-eight leagues, more or less. That estuary, one of the most noticeable things created by God in the world, was called once the Sea of Fresh Water." [169]

As to the Line of Demarcation, Oviedo

states positively that it cuts the north coast of South America, at a point which he calls "Punta de Humos"—The Point of Smoke, or of fogs.[170]

To ascertain the relative latitude of that locality, it is necessary to give Oviedo's nomenclature, with the distances assigned by him to every cape, commencing with Cape St. Augustine, and ranging the coast westwards, viz.:

From Cape St. Augustine to Cape Primero . .	50	leagues.
From Cape Primero to Cape del Plaçél . . .	20	„
From Cape del Plaçél to Rio de S. Miguel . .	30	„
From Rio de S. Miguel to Cape Blanco	55	„
From Cape Blanco to Punta del Palmar	40	„
From Punta del Palmar to Punta de Humos . .	80	„
From Punta de Humos to the real Marañon . .	83	„

The total of these leagues is 358 for the distance from Cape St. Augustine to the western branch of the Amazona, and 275 from Cape St. Augustine to Punta de Humos, which, Oviedo says, is the locality of the Line of Demarcation.

Although the starting-point in this computation is Cape St. Augustine, the distance must not be counted on the parallel of that cape, for the following reasons:

Oviedo in his nomenclature states that the Marañon, or western branch of the Amazona, lies 358 leagues from Cape St. Augustine. Now, his leagues are of $17\frac{1}{2}$ to an equatorial degree. These 358 leagues, therefore, counting from Cape St. Augustine (which is in 35° longitude west of Greenwich), would locate the Amazona *on his sphere* in 55° 36′ west of Greenwich, and in 55° 39′ on *our own sphere*, which is an impossibility. We must assume, therefore, that Oviedo reckoned as following up the coast from Cape St. Augustine

northwardly, then westwardly, at a mean distance of thirty miles from shore—which method is in keeping with a number of his measurements.

If we count in this way the 275 leagues which he says separate Cape St. Augustine from the Line of Demarcation, that Line according to Oviedo's interpretation of the *Padron general* of Chaves in 1548, cut the north coast of the South American continent eighty-five leagues east of the western mouth of the Amazona.

The western mouth of the Amazona (between Caviana Island and the continent) is in 50° 15′ west of Greenwich. Eighty-five leagues of $17\frac{1}{2}$ to the equatorial degree, when carried east of that meridian lead to 45° 17′ *on our sphere*. This makes the Line of Demarcation pass through Boa Vista, in Turyassu Bay.

Conclusions.

Notwithstanding the subsequent Bulls and treaties between Spain and Portugal, all attempts to determine the place where the Demarcation Line was to pass in America have been based upon the stipulations of the Treaty of Tordesillas (1494).

The location of this divisional line has varied according to the notions which the cosmographers of the times had of the circumference of the earth and of the length of the marine league.

But in every instance save one the Line was fixed east of both mouths of the Amazona river.

Thus do we find that, according to Jaime Ferrer (1495), the meridian of the Demarcation Line *on his sphere* was in 42° 25′ west of Greenwich, and *on our sphere* in 45° 37′, also west of Greenwich.

According to Martin Fernandez de Enciso (1518), that meridian, *on his sphere*, was in 47° 24′ west of Greenwich, and *on our sphere* in 45° 38′, also west of Greenwich.

According to the experts convened at the Badajoz Junta (Duran, Sebastian Cabot, etc., in 1524), the meridian of the Line, *on their sphere*, was in 47° 17′ west of Greenwich, and *on our sphere* in 46° 36′ west of Greenwich.

According to Diego Ribeiro and the Sevillian Hydrography of the sixteenth century (1529 usque . . .), the meridian of the Line, *on their sphere*, was in 44° 45′ west of Greenwich, and *on our sphere* in 49° 45′, east of the western mouth only.

Yet, according to Alonso de Chaves and the Padron General, *as interpreted by Oviedo* (1545), the meridian of the Line on that model chart was in a longitude seeming to correspond, *on our sphere*, with 45° 17′ west of Greenwich, which locates the Line east of both mouths of the Amazona.

As to the Portuguese cosmographers, they place the Line, judging from its position in the Cantino map (1502), in a longitude apparently corresponding, *on our sphere*, with 42° 30′ west of Greenwich.

NOTES.

CHAPTER I.

(1) Page 2. Although Alfonso V. was still king, João II. had governed the kingdom of Portugal since April 26, 1475, but in the name of his father ("Act of Portalegre," Paris National Library; MSS. Portug., No. 16).

(2) Page 2. "Mas que entendia que en la capitulacion que habia entre los Reyes [catolicos] y él que aquella conquista le pertenecia" (Navarrete, vol. i., p. 164).

(3) Page 2. "A cidad d'Evora a oito dias de Setembro de mil et quatro cemtos et setemta et noue annos.", and not "en la villa de Alcaçovas a quatro dias de Setembro," as Ruy de Pina and his copyists all say.

In reality what is called the Treaty of 1479, is a series of treaties signed at different dates and places. For instance, there is one (Paris Nation. Libr., Baluze docs., vol. 160, f°. 252-288), very long and in Spanish: "Dada en la villa de Alcacoues aveinte e siete de agosto de 1479." It is only the treaty which settles the marriage between Alfonso, the son

of the prince of Portugal, with the Infanta Isabella of Castile.

(4) Page 3. "Que he dos cabos de Nam e do Bojador atée os Yndios inclusivamente, com todos seus mares ajacentes, ilhas, costas descubertas e por descobrir" ("Chronica del rey Alfonso V.," Lisboa, 1790, 4to, vol. i., cap. ccvi., p. 589.

(5) Page 3. "E quaẽs quer outras ilhas, costas, terras descubertas e por descubrir, achadas e por achar ilhas da madeira, porto samto, deserta, todo las ilhas dos Acores, ilhas das flores e asi as ilhas do cabo verde e todas las ilhas q̃ se ãcha ou forem das ilhas de canaria pera baixo comtra guine porque todo o q̃ he achado e se achar e comquerir ou descobrir emos ditos termos alemdo que ja he achado ocupado e descuberto ficã aos ditos Rei e principe de Portugal e seus Reinos tiramdo so mẽte as ilhas de canaria. Ill. lamçarote, palma, ferteuemtura, a gomera, e fferro, a graciosa, agr̃a canerea, tanarife e todo las outras ilhas da canaria ganhadas as quaẽs fficam aos Reinos de Castela e bem asi nã tornarã moestaram nẽ inquietarã quaesquer pesoas que os ditos tratos de guine, minas, ilhas, costas, terras descubertas e por descobrirẽ em nome ou damaõ dos ditos senhores Rei e principe" ("Capitolos das pazes amtre os Reis de Castella e de Portugal." Nation. Libr., MSS. Portug., No. 20, doc. 2, f°. 36, recto).

(6) Page 4. "Nec sua Regna super possessione, et quasi possessione in qua sunt in omnibus commerciis, terris et permutationibus, siue Resguatis Ghuinee, cum suis Mineris seu Aurifodinis, et quibuscumque aliis Insulis, Littoribus seu Costis,

Maris, Terris detectis seu detegendis, inuentis et inueniendis, Insulis de la Madera, de Portu Sancto, et insula deserta, et omnibus Insulis dictis de los Açores, id est Ancipitrum, et in insulis florum et etiam in Insulis de Cabo uerde, id est, Promontorio viridi, et in Insulis, que deinceps inuenientur, acquirentur ab Insulis de Canaria, ultra et citra in conspectu Ghineo, ita quod quicquam est inuentum uel inuenietur, et acquiretur *ultra in dictis terminis*, id quod est inventum et detectum remaneat dictis Regi et Principi de Portugallia et suis Regnis, exceptis duntaxat Insulis de Canaria, Lansarote, La palma, Forte uentura, La gomera, O ferro, A gratiosa, Ha gran Canaria, Tanariffe, et omnibus aliis Insulis de Canaria acquisitisant acquirendis." We borrow this clause of the Treaty of 1479, and of the Bull of 1481, which contains it, not from the latter, but from the Bull *Præcelsæ devotionis* of Leo X., November 3, 1514, published in the "Corpo diplomatico portuguez"; Lisboa, 1862, 4to, vol. i., pp. 293-294.

(7) Page 5. St. George of the Gold Mine, on the coast of Africa.

(8) Page 5. "Respondió el Almirante que no habia visto la capitulacion ni sabia otra cosa sino que los Reyes le habian mandado que no fuese à la mina ni en toda Guinea, y que así se habia mandado à pregonar en todos los puertos del Andalucía antes que para el viage partiese" (Navarrete, *loc. cit.*).

(9) Page 6. We borrow our extracts from the text of the Bull of Leo X. of November 3, 1514 ("Corpo diplomatico portuguez," vol. i., p. 275).

This Bull of 1452 seems to be, as Mr. Edward Gaylord Bourne says in his valuable paper: "The Demarcation line of Alexander VI.," the origin of the re-establishment in Europe, and, as a consequence, of the introduction of negro slavery in the New World: "Illorumque personas in perpetuam servitutem redigendi . . . concedimus facultatem" ("Yale Review" for May, 1892).

(10) Page 6. "Per huiusmodi Occeanum Mare uersus meridionales et orientales plagas nauigari, illudque nobis occiduis adeo foret incognitum ut nullam de partium Marum Gentibus certam notitiam haberemus credens se maximum in hoc deo prestare obsequium, si eius opera et industria Mare ipsum usque ad Indos, qui Christi nomen colere dicuntur navigabila fieret." "Declaratio, tum soptam tum reliquam Africam a Promontoriis Baradoc et Nam ad Ghineam usque, vel etiam ultra ad Antarcticum. . . ."—In Mainard's "Bullarium," vol. iii., pars iii., p. 70.

(11) Page 7. Humboldt, "Examen Critique," vol. i., pp. 331-334.

(12) Page 8. Juan and Ulloa speak of a Bull of Calixtus of March 15, 1456, confirming the said Bull of January 8, 1454. We have only found the Bull *Oblectaverunt* of September 3 of that year (Raynaldi, vol. xxix., p. 59), which has nothing to do with those donations. Raynaldi notes it as: "Commendati Lusitani ob prompta studia in defendare christiana."

(13) Page 8. "En xxxiij dias pase a las Indias . . . y luego que legue a las Indias." Our "Christophe

Colomb," vol. i., pp. 420, 426. It is yet the name which in Spain they give officially to America.

(14) Page 8. "Epistola Christophori Colom: cui *a*etas nostra multu*m* debet: de Insulis Indi*a*e supra Gangem nuper inuentis. Ad quas perquirendas octauo antea mense auspicijs et aere inuictissimi Fernandi Hispaniarum Regis missus fuerat: ad Magnificum d*omin*u*m* Raphaelem Sanxis: eiusdem serenissimi Regis Tesaurarium missa: quam nobilis ac litteratus vir Aliander de Cosco ab Hispano ideomate in latinum conuertit: tertio Kal*endas* Maij. M. cccc. xciij. Pontificatus Alexandri Sexti Anno Primo." Small 4to of 4 unnumbered leaves, printed in B. L., *sine anno aut loco* (*sed* Roma, 1493, by Stephanus Plannck). For a complete description of all the editions of that most valuable pamphlet published in the fifteenth century see our "Christophe Colomb et les Académiciens espagnols," Paris, 1894, small in-8, pp. 61-101.

(15) Page 9. "Estecias escribe que estan grande como toda la otra parte de Asia, y que Onesecrito dice que es la tercera parte del esfera" (Las Casas, "Historia de las Indias," lib. i., cap. v., vol. i., p. 56).

CHAPTER II.

(16) Page 11. Bernaldez, "Reyes Catolicos," cap. cxviii., vol. i., p. 369.

(17) Page 11. Las Casas, *op. cit.*, vol. i., p. 478.

(18) Page 11. "Historie," 1571, cap. xlii., f°.

34. It is worthy of notice that Oviedo, who was present when Columbus arrived in Barcelona, gives no date for that event.

(19) Page 12. "Per più chiaro, et giusto titolo delle quali di subito i re Catolici per consiglio dell' Ammiraglio procacciarono di hauer dal Sommo Pontefice l'approbatione, et donatione della conquista di tutte le dette Indie" ("Historie," cap. xlii., f°. 85, verso). Las Casas, lib. i., cap. lxxix., vol. i., p. 482, only paraphrases the above quotation from the "Historie."

(20) Page 13. Tribaldo di Amerigo de Rossi, "Libro de' Conti," between March 25 and 31, 1493, as the year at Florence commenced March 25 (Father Ildefonso, "Delizie degli eruditi toscani," Florence, 1770, xxii., p. 281; Bandini, "Vespucci," 1745, p. xxxix).

(21) Page 13. Malipiero, "Annali Veneti," in the "Archivio storico italiano," 1843, vol. vii., p. 314. See our "Christophe Colomb," vol. ii., p. 117, note.

(22) Page 13. "1493. A di 18 April fo lettere di Roma nel legato, con avisi di Portogallo di le insule havene trovate e barze del re che andoua in India, e la lettera e data in la caravella sopra l' ixola dì Canaria, a di 15 fevrer passado" (Marin Sanudo, "Summarii di Storia Veneziana" MS.). This was written in Venice. The news therefore reached Rome before April 18.

(23) Page 15. See, for instance, the Bull of Clement VI., *Sicut exhibitæ nobis*, Novemb. 15, 1344, granting to Louis of Spain (a French admiral)

the sovereignty and temporal jurisdiction of the Canary Islands, with which he was clothed or feudally invested, and presented with a golden sceptre. This was followed by the homage-liege of the grantee, who declared himself to be the pope's vassal (Raynaldi, "Annales Ecclesiastici," ann. 1344, Nos. xxxix and xlvii).

But Mr. John Fiske is entirely mistaken when, in his "Discovery of America," vol. i., p. 458, note, he quotes "Valasci Ferdinandi ad Innocentium octavum de obedientia oratio," in support of the opinion that João II. did homage to Innocent VIII. for the countries discovered by Bartholomew Diaz. Velasco pronounced that Oration of Obedience on December 9, 1485 (Burchard, "Diarium," Thuasne's edition, vol. i., p. 169); whilst Diaz did not return from his famous voyage to the Cape of Good Hope until two years later, in December, 1487 (Barros, "Decada Primeira da Asia," Lisboa, 1752, vol. i., fol. 42-44).

CHAPTER III.

(24) Page 16. Gomara relates that the negotiations for the grant were carried on by the embassadors whom Ferdinand and Isabella had sent a few months before in charge of the Ambassy of Obedience to Alexander VI.: "Y sus embaxadores que pocas meses antes avian ydo a dar el para bien y obediencia al Papa Alexandro sexto, le hablaron y dieron las cartas del rey y reina con la relacion de

Colon" ("Historia de las Indias"). Here, as is usual with that unreliable historian, Gomara is mistaken. Those ambassadors did not reach Rome till May 25, 1493, and at that date the three Bulls had been issued three weeks!

(25) Page 16. We do not know on what authority Herrera, in his Decade I., p. 40, says that Ferdinand and Isabella intimated at the same time that great scholars deemed the application of Their Majesties to the Court of Rome for a title to the territories already in their possession, to be unnecessary. This opinion may have been held in Spain; but it is highly improbable that it was ever suggested to the Pope by the Catholic Sovereigns. At all events, there is no evidence of such a theory having existed in those days.

(26) Page 17. So named, like nearly all Bulls, from its opening words.

(27) Page 17. We have found the text of the Bull *Inter cætera* of May 3, 1493 (there are two Bulls commencing with these words) only in Navarrete, "Coleccion de los Viages que hicieron por mar los Españoles," Madrid, 1825, vol. ii., pp. 23-27, and, in facsimile, in the "Documenta selecta," described here below. It has never been translated.

(28) Page 18. We call it "first Bull *Eximiæ*," because the Bull of November 16, 1501 (Navarrete, vol. ii., p. 454) also begins with *Eximiæ devotionis*.

(29) Page 18. "Annales ecclesiastici," 1751, vol. xi., pp. 213-214, borrowed from "Alex. vi., l. 1. literar. commun. n. 234." Raynaldi by mistake

gives to that Bull the first place in the series. He has overlooked the reference in it, viz.: "prout in nostris inde confectis litteris plenius continetur," which can only apply to the great Bull of May 3.

The first author who, to our knowledge, gave the text of this Bull *Eximiæ* is not Raynaldi, but Solorzano, in his "De Jure Indiarum," Madrid, 1629, folio, vol. i., pp. 612-613, but with the erroneous date of "quarto Nonas Maij."

(30) Page 21. It is a reference to the Bull *Inter cætera*.

(31) Page 23. The words from "should" to "Paul," are not in the Vatican text. We borrow them from the text inserted by Solorzano in his "De Jure Indiarum," vol. i., p. 613, where they are given in Latin as follows: "Si quis autem hoc attentare præsumpserit, indignationum omnipotentis Dei, ac Beatorum Petri et Pauli Apostolorum eius se noverit incursurum." This *sancto penalis* is also to be found in the two Bulls *Inter cætera*. We insert it to show that Solorzano, most probably, took his text from a full transcript of the original Bull *Eximiæ devotionis*, which is no longer to be found in the Spanish archives.

(32) Page 24. The Latin text which served (with the exception above mentioned) for this translation, is taken from 'Documenta selecta et tabulario secreto Vaticano quæ Romanorum pontificium erga Americæ populos curam ac studia tum ante tum paullo post insulas a Christophoro Columbo repertas testantur phototypia descripta (curante J. C. Heywood).' Romæ. Typis Vaticanis, 1893,

folio, pp. 21-22, where it is reproduced in facsimile from "Regest. Vatic., vol. 879."

(33) Page 24. We know by the "Codex Diplomaticus" that there was attached to that Bull a leaden seal, fastened with silk strings red and saffron colour: "bulla plumbea in filiis sericiis [*sic pro* filis sericis] rubei croceique coloris more Romanæ Curiæ impendente" (B. F. Stevens's edition of the "Codex," doc. xxxvi., p. 182). It is not known what has become of this original Bull, which was doubtless the one which De Spratz delivered in person to the Catholic Sovereigns. It may have been still in existence when Solorzano wrote his "De Jure Indiarum," in 1626, for, after giving the text of the Bull of May 4 (vol. i., p. 610), he says: "Hactemus Alexander VI. cuius Bulla originalis in Regijs Archivis servatur;" that is, the original Bull was preserved in the Royal Archives. But in his "Politica Indiana," vol. i., p. 43, he states that it is in the "Archivos del Real Consejo de las Indias." At present it is not in either.

The original Bull of May 4, according to the copy authenticated by Pedro Garcia, Bishop of Barcelona, at Barcelona, July 19, 1493, ended as follows: "Gratis de mandato Sanctissimi domini nostri pape pro reverendissimo A. de Muccialis pro[tonotario ?], Io[hannes] Lur [?], A. Consenino, L. Podochatarus. D. Galletus. Registrata in camera apostolica. Amerinus." (Gratis, by command of our most holy Lord the Pope. For the most reverend A. de Moccialis, protonotary (?) Io. Lur (?), A. Consenino, L. Podochatari, D. Galletti. Recorded

in the Apostolical Chamber, Amerino.) The four last names are wanting in Navarrete's transcript of what he calls: "Original en el Archivo de Indias en Sevilla."

A. de Moccialis is Antonio Mucciarelli, Dean of the Apostolical Scribes (Burchard, "Diarium," Thuasne's edition, vol. ii., pp. 352, 380), *L. Podocatari* is Ludovico Podocataro, Pontifical Secretary, who became Archbishop of Nicosia, and Cardinal (Bonamici, "de Script. eccles.," p. 200); *D. Galetti* is Domenico Galleti, Apostolical Scribe, who died in 1501 (Burchard, vol. iii., p. 170). We assume that these two, together with the other two signers, acted as proxies for Mucciarelli. As to *Amerinus*, he is either Giovanni or Giacomo Amerino, both of whom were solicitors or clerks for Apostolical letters (Burchard, *passim*). We have been unable to ascertain who the others were, and even to decipher the name of one of them.

CHAPTER IV.

(34) Page 29. Ruy de Pina, "Chronica d'el rei João II."; in the "Collecção de livros ineditos de Historia Portugueza," Lisboa, 1792, folio, vol. ii., cap. lxv., p. 177. Garcia de Resende, "Livro das Obras," Lisboa, 1555, folio, cap. clxii, f°. xcvij.

(35) Page 29. We possess the oration delivered by Ferdinand de Almeida on the occasion of that Embassy of Obedience, which, unfortunately, is not dated. Mention is made therein of the maritime dis-

coveries of the Portuguese, but without any allusion to those of the Spaniards ("Bibliotheca Americana Vetustissima," p. 36, and "Additamenta," p. 1).

(36) Page 31. "Almirante del dicho mar Océano, que es nuestro, que comienza por una raya é linea que Nos habemos hecho marcar, que pasa desde las islas de los Azores y las islas de Cabo Verde, de Setentrion en Austro, de polo à polo. Por manera que todo lo que es allende de la dicha linea, al Occidente, es nuestro y nos pertenece" (Las Casas, "Historia de las Indias," lib. i., cap. lxxx., vol. i., p. 488. Navarrete, vol. ii., p. 60), says "de los Azores *y* las islas de Cabo Verde:—from the Azores *and* Cape Verd islands." That is, the Line of Demarcation, according to Navarrete, would have passed between the two archipelagos, thus locating it by about 26° west longitude of Greenwich. But we distrust his text.

(37) Page 32. Heading certificate of the Bull of May 4 in the "Codex Diplomaticus."

(38) Page 32. "Bibliotheca Americana Vetustissima, Addit.," p. 2. According to a tradition, there was formerly a marble slab over the inside door of the Vatican archives, containing an inscription which threatened with full excommunication whosoever should dare cross the threshold of that consecrated place. It was, we must say, the most efficacious means in those days to protect that precious repository of archives. When in 1880 we heard that the inscription had been replaced by another, more in the spirit of the time, we at once repaired to Rome, and read it, as follows:

LEO XIII PONT MAX
HISTORIÆ STVDIIS CONSVLENS
TABVLARII ARCANA RECLVSIT
ANNO MDCCCLXXX

Unfortunately it remained a dead letter to us, owing to the fact that the documents of the Pontificate of Alexander VI. (Borgia) were not communicated to the public. Cardinal Hagenruther, who had charge of those archives, promised nevertheless to institute researches for our benefit. Sometime afterwards, Monsignor Carini informed us that nothing of interest to us had been found.

(39) Page 34. "Bibliotheca Americana Vetustissima, Additamenta," pp. viii-ix.

(40) Page 36. "Omnes Insulas et terras firmas inuentas et inueniendas, detectas et detegendas versus Occidentem et Meridiem . . . sive terræ firmæ et insulæ inuentæ et inveniendæ sint versus Indiam aut versus aliam quacumque partem. . . ."

(41) Page 37. Decade I., lib. ii., cap. iv., p. 40.

(42) Page 37. We are aware that Ferdinand and Isabella received the title of "The Catholic Sovereigns" only in December 1494 (Marin Sanudo, "Diarij," vol. i., p. 424), but that is the name by which they are generally designated by historians.

(43) Page 38. "Examen Critique," vol. iii., pp. 54-55; "Cosmos," Otté's translation; London, 1849, vol. ii., p. 655, note.

CHAPTER V.

(44) Page 41. "London Times," No. of February 6, 1896, p. 8.

(45) Page 42. "Analecta juris pontificii," No. for May-June, 1882, col. 293-294.

(46) Page 42. Baronius, "Annales ecclesiastici," t. xix., p. 404.

(47) Page 42. "Fœdera," 1739, vol. i., p. 5.

(48) Page 42. "Ut pro dilatandis Ecclesiæ terminis . . . pro Christiana Religionis augmento."

(49) Page 43. "Analecta juris pontificii," 1882, No. 185, cols. 256-283; Scheffer-Boichorst, in "Mittheilungen des Instituts für osterreichische Geschichtsforschung," Supplement iv., 1893, pp. 101-122. On the other hand, Miss Kate Norgate, in her learned history, "England under the Angevin Kings," vol. ii., p. 96, says that the Bull *Laudabiliter* "is now admitted by all Irish scholars."

(50) Page 43. "Præhera ego, et major filiis meus rex juramus, quod a Domino Alexandro Papa, et ejus successoribus recipiemus et tenebimus regnum Angliæ, et nos, et nostri successores in perpetuum non reputabimus nos Angliæ reges veros, donec ipsi nos catholicos reges tenuierint" ("Analecta," *ubi supra*).

(51) Page 44. "Vestræ jurisdictionis et regnum Angliæ et quantum ad feudatarii juris obligationem, orbis dum taxat obnoxius teneor et astringor" (Baronius, "Annales Ecclesiastici," vol. xix., *sub anno* 1173, p. 404).

(52) Page 44. For instance, Ruy de Pina relates that in the time of Edward IV. (*circa* 1482), the Duke de Medina Sidonia having caused ships to be equipped in England by John Tintam and William Fabian, intended to open trade with the Guinea coast, João II. sent ambassadors to protest against the undertaking. These having exhibited the title whereby the King of Portugal was sovereign of Guinea: "ho titulo que el Rey tinha no senhorio de Guiné," Edward IV. prohibited his subjects from such a trade. "Chronica d'el rei D. João II.," chap. vii., in "Collecão de livros ineditos de Historia Portugueza," Lisboa, 1792, folio, vol. ii., p. 25. Robertson, who cites the fact ("Hist. of America," 1828, note x., p. 531), after Garcia de Resende, quoted by Hakluyt, justly infers that this title was the Pope's Bull for the dominion of Guinea.

(53) Page 44. To Innocent VIII., Feb. 18, 1485, May 8, 1487, June 14, 1492; to Alexander VI., Decemb. 14, 1492, Jan. 14, 1493. See Burchard's "Diarium," Thuasne's painstaking and praiseworthy edition, vol i., pp. 141, 257-259, 492; ii., pp. 18, 36. If we add Scotland, under the Stuarts, there are more of those Ambassies of Obedience.

(54) Page 45. "Commentarius de creatione, coronatione . . . Alexandri VI. ad Ferdinandum et Helisabeth," Roma, Eucharius Silber, 1493, 8vo. Porcio does not say so in so many words, but we must infer it from his intention to sum up in the same manner the other Discourses of Obedience which were delivered on that occasion.

(55) Page 45. Burchard's "Diarium," vol. ii., p. 18.

(56) Page 45. Cardinal Moran himself recognizes that "from the first half of the 13th century to the close of the 15th century, it was principally through this supposed grant of the Holy See that the English government sought to justify their claim to hold dominion over Ireland" ("Irish Ecclesiastical Record," Nov., 1872). See also the curious remarks of Solorzano, about the Bull *Laudabiliter* in his "De Jure Indiarum," Madrid, 1629, folio, vol. i., pp. 614-615.

(57) Page 46. Rymer, "Fœdera," vol. xii., p. 595.

CHAPTER VI.

(58) Page 50. "Preterea aliud breve super concessione dominii et bonarum illarum insularum nuper ab hominibus Regiis inventarum per nos facta prefatis Regibus" "Bibliotheca Americana Vetustissima, Additamenta," p. 2, note 2.

(59) Page 51. Burchard, *op. cit.*, vol. ii., p. 74.

(60) Page 51. Infessura, *apud* Eccard, "Corpus Histor.," vol. ii., col. 2,012, and Thuasne's Burchard, vol. ii., pp. 81 and 681. See also some supplementary details borrowed from the original MS. of Burchard, preserved in the Vatican (Piper, "Ein unedirtes Stürts aus dem Tagebuche Burchard's," in the "Romische Quartalschrift," Rome, 1894, pp. 210-212).

According to Zuñiga (*apud* Clemencin, "Elogio

de la Reina Isabel," p. 377, note), the Catholic Sovereigns continued to admonish Alexander VI. In 1498 they sent to him Inigo de Cordóba and Dr. Felipe Ponce, to "beg of him, among other things, to send away from Rome his daughter-in-law and her children, to lead himself an honest life ("honestase su persona y vida"), to reform his household, and to prevent ecclesiastical prebends and dignities being sold."

(61) Page 54. See "Un rarissime americanum," in "Bulletin du Bibliophile," 1897, No. of February, pp. 70-76, with a facsimile.

CHAPTER VII.

(62) Page 55. Zurita says ("Anales de Aragon," vol. vi., fol. 35, v°.) that Portuguese sailors who had accompanied Columbus were taken by force and put on board some vessels of the fleet. Columbus had with him an Englishman and an Irishman of Galway, but, so far as known, not a single Portuguese. See the list of his crews in the first voyage, in our "Discovery of North America," pp. 663-667.

(63) Page 55. Zurita states that Ruy de Sande left Torres Vedras for Barcelona April 3, 1493.

(64) Page 57. By Muñoz, in 1779, by order of Charles III. of Spain.

(65) Page 59. Zurita, *op. cit.*, f°. 30, says that Lope de Herrera left Barcelona April 22, 1493.

(66) Page 59. "Ya sabeis como vos hobimos escrito que Rel ey de Portugal enviaba á Nos sus

mensageros á entender sobre lo que le hobimos escrito con Lope de Herrera, que ficiese pregonar en su Reino que ninguno fuese a la parte que es nuestra y pertenece a Nos" (Letter of Ferd. and Isabella to Columbus, Navarrete, vol. ii. p. 108).

(67) Page 61. "Aquí son venidos sus Embajadores que vinieron tres dias ha" (Letter of Aug. 18, 1493, *op. cit.*, p. 96).

(68) Page 61. Navarrete, vol. ii., doc. lxviii., p. 98.

(69) Page 62. "Habiamos saber los grados en que estan las islas y tierra que fallastes y los grados del camino por donde fuistes," Sept. 5, 1493. Navarrete, doc. lxxi, vol. ii., p. 109.

(70) Page 62. "Con ellos se ha mucho platicado en el negocio, y creemos que no se podrá concertar, porque ellos no vienen informados de lo que es nuestro, y creemos que querrán consultar con el Rey de Portugal." (Navarrete, vol. ii., doc. lxxi., p. 108.)

(71) Page 63. Navarrete, vol. ii., doc. lxxi., p. 109.

(72) Page 63. In a letter from one Duarte d'Almeida addressed to the King of Portugal, mention is said to be made of "hun livro do Almirante das Indias, que fizera de Don Christ. Colon, seu pay das demarçoes dos mares e terras de Vossa Alteza cos de Castilla." "Raccolta Colombiana," Desimoni, "Questioni Colombiane," p. 78.

(73) Page 64. Diego Gracian de Aldrete "interpretatione linguarum exoticarum fuit", (Antonio, "Bibl. Nova," vol. i., p. 286.)

(74) Page 64. Navarrete, vol. ii., doc. xi., pp. 404-406. It is the Bull which Herrera quotes (Decade I., p. 44) under the erroneous date of

Sept. 26. There is a Latin text of that Bull in Solorzano, "De Jure Indiarum," edit. of 1629, vol. i., pp. 613-614, under the date of "Anno millesimo quadringentesimo nonagesimo tertio, sexto Kalend. Octobris." But we think that it is only a version made by him of the Spanish translation of Gracian de Aldrete.

(75) Page 65. Burchard, "Diarium," vol. i., p. 367, and the case of the archbishop of Cosenza, pp. 405-406.

(76) Page 66. "Tam a capitibus de Bojador et de Naon usque ad Indos, quam etiam ubicumque et in quibuscumque partibus, etiam nostris temporibus forsan ignotis."

(77) Page 66. "A todas y cualesquier islas y tierras-firmes halladas y por hallar, descubiertas y por descubrir, que navegando ó caminando hácia el Occidente ó el Mediodia, son ó fueren ó aparacieren, ora esten en las partes Occidentales ó Meridionales y Orientales y de la India" (Navarrete, *loc. cit.*).

CHAPTER VIII.

(78) Page 71. Zurita says that this Garcia was "Garci Lopez de Carvajal hermano de Bernardin de Carvajal," the Spanish ambassador at Rome.

(79) Page 71. "Libro das Obras," fol. 32, recto.

(80) Page 72. Navarrete, vol. ii., doc. lxxv., p. 134.

(81) Page 73. *Ibidem*, p. 133, and our "Christophe Colomb," vol. i., p. 359.

CHAPTER IX.

(82) Page 74. "Sábese la concesion del Papa Alexandro; la division del mundo como una naranja entre el Rey de Portugal y los abuelos de S. M." (Letter from Alonso de Zuazo to the Emperor, Jan. 22, 1518; "Documentos ineditos de Indias," vol. i., p. 296). "Desuerte, que dividiendose, como se divede el mundo en trescientos y sesenta grados, vinieron à caber à cada uno ciento y ochenta, y esta division fue causa de los nuevos pleytos que despues huvo sobre las islas Malucas" (Solorzano, "Politica indiana," Madrid, 1776, fol., lib. i., cap. iii., § 14, vol. i., p. 9).

(83) Page 76. Although Jaime Ferrer had sent with his *parecer* a spherical figure of the world, "so that the truth of his reasonings might more clearly appear," he uses an expression which leads us to infer that the sphericity of the earth was not to be taken into account in establishing the Line of Demarcation. "It is necessary," says Ferrer, "to draw a straight line in latitude [*sic pro* longitude?] from pole to pole, *only in our hemisphere*." (Es menester facer una linea recta in latitud de Polo á Polo solamente en este nuestro hemisferio.—Navarrete, vol. ii., p. 99).

(84) Page 76. Edward G. Bourne, in the "Annual Report of the American Historical Association for 1891," pp. 103-130.

(85) Page 78. Navarrete, vol. ii., p. 136.

CHAPTER X.

(86) Page 81. Bartholomew Columbus, who was with him at Hispaniola since September 29, 1494. "Christophe Colomb," vol. ii., p. 198.

(87) Page 81. Navarrete, vol. ii., doc. lxxix., p. 155.

(88) Page 82. *Ibid.*, doc. xci., p. 171.

(89) Page 83. "1494, Madrid. Cedula de los Reyes Catolicos ordenando que en las cartas de marear que se hicieron en lo sucesivo se ponga la linea de particion convenida con el Rey de Portugal, de un polo al otro 370 leguas de las islas de Cabo Verde a la parte de Poniente, mientras van carabelas de una y otra parte con astrologos, pilotos y marineros à hacer el definitivo trazado de la linea." The original draft still exists in the collection of manuscripts of Vargas Ponce, preserved in the library of the Royal Academy of History at Madrid, vol. liv., p. 11. The month and day in the date are left blank, which shows that the cedula never was issued. It is to be regretted, for we should then have a geographic proof of what Spain, provisionally, considered the terminus of the 370 leagues.

(90) Page 83. The Treaty of Tordesillas was not confirmed by the Pope until January 24, 1506, by a Bull from Julius II. Nor do we hear of any attempt to carry those stipulations into effect until January 22, 1518. At the latter date, Alonso de Zuazo writes from Santo Domingo to the Emperor: "Enviaron ciertos pilotos para hacer una demarca-

cion, é asentar estas lineas é punto donde habian de estar, como esta sea division de longitudes en que los pilotos ninguna cosa saben ni alcanzan, no pudieron ni supieron hacer cosa cierta, e así se volvieron sin hacer ninguna cosa." (Certain pilots were sent to mark the demarcation and fix those lines and places where they ought to be. As this was a division by longitudes of which pilots neither know nor practice anything, they could do nothing nor knew anything certain to do and therefore returned without having accomplished anything).—"Documentos ineditos de Indias," vol. i., p. 296). There are no documentary traces anywhere else of such an attempt. Yet, see *infra*, note 92.

(91) Page 84. "Christopher Columbus his own book of privileges," London, B. F. Stevens, folio, in our Historical Introduction, pp. lviii-lix.

CHAPTER XI.

(92) Page 85. Juan Bautista Gesio, the Italian cosmographer in the employ of Philip II., states, in a *Comunicacion* of Nov. 24, 1579 (*apud* Calvo, vol. i., p. 16), that "segun el informo de doce cosmógrafos castellanos y portugueses, nombrados [when?] para figar esa linea de limites, los primeros tomaron por base la isla de San Antonio, las mas occidental de las del Cabo Verde; los segundos, la de Sal, la mas oriental de dichas islas."

(93) Page 86. Baron de Rio Branco, "Statement submitted by the United States of Brazil to

the President of the United States of America." New York, 1894, 8vo, vol. iii., pp. 8 and 79, which contains the full text of both treaties.

(94) Page 89. "Bibliotheca Americana Vetustissima Additamenta," p. 152; "Discovery of North America," p. 717.

(95) Page 89. "A nuestro especial amigo, Jaime Ferrer, el Cardenal de España: Jaime Ferrer especial amigo: Nos querriamos fablar con vos algunas cosas que cumplen: por ende rogamos vos que vista esta letra nuestra portais y vengais aquí à Barcelona, y traed con vos el Mapamundi y otros instrumentos si teneis tocantes a cosmografia" (Navarrete, vol. i., pp. 97-98).

(96) Page 89. On this map the new Line of Demarcation, extending from pole to pole, was marked in red, whilst the portion of the globe allotted to Portugal by the Treaty of Tordesillas was traversed by lines painted yellow. Unfortunately, both the map and globe are lost ("Discovery of North America," p. 405).

CHAPTER XII.

(97) Page 91. The stade of Macrobius, Strabo, etc., which Ferrer takes as a basis for his calculations, is the Olympic stade, now mathematically ascertained to have been equal to $192^{m},27$. "Die Ausgrabungen zu Olympia. V. Übersicht der arbeiten und funde vom Winter und Frühjahr, 1879-1880 und 1880-1881. XLIII tafeln, herausgegeben von E. Curtius,

F. Adler, G. Treu und W. Dörpfeld," Berlin, 1881, folio, p. 37, and Plate XXXI.-XXXII.

(98) Page 92. Viz.: Aurelius — Theodosius Macrobius.

(99) Page 92. Eratosthenes. Let us remark that the great Greek mathematician did not count each degree as equal to 700 stades, as the circumference of his sphere was not divided in 360 degrees, but in 60 parts, each of 4,200 stades; which, however, amounted to the same thing.

(100) Page 92. Navarrete, vol. ii., p. 101.

(101) Page 92. We propose to ascertain where, according to the theory of Jaime Ferrer, the meridian of the Line of Demarcation should be placed on the terrestrial globe as it is known to-day.[1]

Our inquiry will be prosecuted on the basis of data borrowed from the *Parer* of that cosmographer, which, in their original Spanish text, are as follows:

1st. The starting point, to commence counting the 370 leagues westwards, is "la isla del medio de las que estan delante del Cabo Verde" (Navarrete, vol. ii., p. 103, line 1).

2nd. "Cada un grado en este paralelo comprende veinte leguas y cinco partes de ocho" (*Op. cit.*, p. 99, line 30).[2]

[1] We are under the greatest obligations to our esteemed friend, Mr. E. Bauvieux, a retired officer of the French navy, without whose obliging and scientific aid we certainly could not have devised the necessary methods, and carried out the difficult computations in this as well as in other technical disquisitions and notes of the present work.

[2] It is from this datum 2nd that we infer Ferrer's league to be of $21\frac{1}{3}53$ to a degree of his equator.

3rd. "Es menester dar por cada un grado setecientos stadios segun Strabo, Teodoci, Macrobi, Ambrosi, Euristenes" (*Op. cit.*, p. 101, line 51-53).[1]

4th. "Es de notar que las 370 leguas partiendo de las dichas islas [del Cabo Verde] comprende diez y ocho grados y cada un grado en este parallelo comprende 20 leguas y cinco partes de ocho" (*Op. cit.*, p. 99, line 28).

5th. "Cada un grado de los trópicos es veinte leguas y cuatro partes de trescientos sesenta" (*Op. cit.*, p. 102, lines 34-36).[2]

6th. "En el cerclo equinoccial cada un grado es de veinte y una leguas y cinco partes de ocho" (*Op. cit.*, p. 102, lines 33-34).[3]

7th. "La circumferencia de la tierra es doscientos cincuenta y dos mil stadios segun Strabo, Alfragano, Ambrosi, Macrobi, Teodosi, y Euristenes, los cuales doscientos cincuenta y dos mil stadios á razon de ocho stadios por milla son treinta y un mil y quinientas millas, y á cuatro millas por legua son siete mil ochocientas setenta y cinco leguas" (*Op. cit.*, p. 102, lines 9-15).[4]

8th. "Es menester dar por cada un grado setecientos stadios, segun Strabo, Alfragano, Teodoci,

[1] It is from this datum that we draw inferences identical with the data drawn from Nos. 7 and 8.

[2] It is from this datum 5th that we infer Ferrer's league to be of $21^{1},813$ to a degree on his equator.

[3] It is from this datum 6th that we infer Ferrer's league to be of $21^{1},625$ to a degree on his equator.

[4] It is from this passage that we draw inferences identical with those drawn from Nos. 3 and 8.

Macrobi, Ambrosi, Euristenes, porque Tolomeo no da por grado sino quinientos stadios" (*Op. cit.*, p. 101, lines 1-4).[1]

We will now proceed to carry out our investigation in the following method, thus:

First: By accepting for the actual sphere the meridian which, on *Ferrer's sphere*, passes 37° of Ferrer's leagues on the parallel of 15° latitude, west of the easternmost extremity of Fogo Island (one of the Cape Verde Islands). According to Ferrer, the arc of the parallel of 15° latitude comprised between those two meridians is 18°.

Second: By verifying the calculation by means of which Ferrer came to fix that arc of longitude of 18°.

Third: By determining the meridian which, *on our actual sphere*, would traverse the parallel of 15° latitude at a distance stated in actual marine leagues (of 20 to a degree) equal to 370 of Ferrer's leagues.

First.

Relying upon his data relative to the dimensions of the terrestrial globe, Ferrer, in 1494-1495, calculated that 370 of his leagues represented the length of an arc of 18° on the parallel of 15° north latitude.

[1] It is from this datum 8th that we establish the relation existing between the real dimensions of the terrestrial globe and those ascribed to it by Ferrer (in valuing the stade at $192^{m},27$). From this passage can also be inferred the value of Ferrer's league in our marine leagues of 20 to a degree of the equator (the stade also equal to $192^{m},27$).

He proposed, therefore, that the divisional line between Spain and Portugal should pass on the sphere, *such as it was then believed to be*, 18° west of the starting point, which was the most eastern extremity of Fogo Island in the Cape Verde archipelago.

Whatever may be the dimensions adopted by Ferrer for the terrestrial globe, the meridian of 18° on his sphere will always be 18° for all the spheres possessing the same centre as his own, and, consequently for the terrestrial sphere as it is known to-day. On the latter, the meridian adopted by Ferrer would be in 24° 25′ west (Greenwich) + 18° = 42° 25′ west (Greenwich), accepting 24° 25′ west (Greenwich) as the starting meridian.[1] This divisional meridian would thus pass, on the parallel of 15° latitude, in 348l,138 (marine leagues of 20 to a degree) west of the starting meridian, which, as already stated, was the easternmost extremity of Fogo.

[1] In calling x the length of the arc of 18° (in marine leagues of 20 to a degree on the equator) on the parallel of 15° latitude, and knowing besides that the arc of 18° of the equator is equal to 18° × 20 = 360 leagues, we have the relation:

$$\frac{x}{360} = \frac{\cos 15^\circ}{1}, \text{ whence } x = 360 \times \cos 15^\circ.$$

$$\begin{aligned} \text{Log } 360 &= 2{,}5568025 \\ \text{Log cos } 15^\circ &= 9{,}9849438 \\ \hline \text{Log } x &= 2{,}5417463 \end{aligned}$$

$$x = 348^{l},138.$$

SECOND.

Let us ascertain whether the meridian calculated to pass, on Ferrer's sphere, 370 of Ferrer's leagues west of the starting meridian, is really a meridian situate 18° west of the starting meridian.

For that purpose it is necessary to determine the value of Ferrer's league in the equatorial degree in his sphere.

Ferrer in his *Parer* says:

"Es de notar que las 370 leguas partiendo de las dichas islas comprenden por Occidente 18 grados, *y cada un grado en este parallelo* comprende 20 leguas y cinco partes de ocho." "It is to be noticed that the 370 leagues, from the said islands [the Cape Verde Islands], comprise westward 18 degrees, and each degree in that parallel comprises 20 leagues and $\frac{5}{8}$" [$=20^{l},\frac{5}{8}=20^{l},625$].

If on Ferrer's sphere one degree of the parallel of 15° is of the length of $20^{l},625$ of Ferrer, one degree of the equator of the same sphere will be $21^{l},353$ of the same leagues.[1]

[1] In calling x the length in Ferrer's leagues of the arc of 1° of Ferrer's sphere at the equator, and knowing that on the same sphere the arc of 1° of the parallel of 15° latitude is equal to $20^{l},625$ of Ferrer, we have the relation:

$$\frac{x}{20,625}=\frac{1}{\cos 15^{\circ}},\ \text{whence}\ x=\frac{20.625}{\cos 15^{\circ}}$$

$$\begin{aligned}\text{Log } 20,625 &= 1,3143940\\ \text{Log cos } 15^{\circ} &= 9,9849438\\ \hline \text{Log } x &= 1,3294502\\ x &= 21^{l},353.\end{aligned}$$

In the same *Parer* we find the following statement:

"Y cada un grado de los Tropicos es 20 leguas y cuatro partes de trescientos sesenta:—And each degree of the Tropics is 20 leagues and four parts of three hundred and sixty" [$20^l,\frac{4}{360} = 20^l,011$].

This valuation of $20^l,011$ of the arc of 1° of the tropical circles (23° 27′ lat.) gives $21^l,813$, for the length of the arc of 1° of the equator in the same sphere.[1]

Again, in his *Parer*, Ferrer says: "Es de notar que en el cerclo equinoccial cada un grado es de veinte y una leguas y cinco partes de ocho:—It should be noticed that in the equinoctial circle, each degree is of twenty-one leagues and $\frac{5}{8}$" [$21^l,5\frac{5}{8} = 21^l,625$].

Finally, it appears from several passages in the same *Parer*, that Ferrer ascribes 700 stades to a degree of the equator in his sphere; 8 stades for a mile, and 4 miles for a league.

[1] In calling x the length in Ferrer's leagues of the arc of 1° of the equator in Ferrer's sphere, and knowing that the arc of 1° of the parallel of 23° 27′ latitude is equal to $20^l,011$ of the same leagues, we have the relation:

$$\frac{x}{20,011} = \frac{1}{\cos 23^\circ 27'} \text{ whence } x = \frac{20,011}{\cos 23^\circ 27'}$$

$$\begin{aligned} \text{Log } 20,011 &= 1,3012688 \\ \text{Log cos } 23^\circ 27' &= 9,9625624 \\ \hline \text{Log } x &= 1,3387064 \end{aligned}$$

$$x = 21^l,813.$$

According to these data, Ferrer's league in his Equator would be:

$$\frac{700}{8 \times 4} = \frac{700}{32} = 21^{l},875.$$

We consequently find, according to Ferrer himself, four different valuations for his league in the equatorial degree, viz:

$$21^{l},353\,(A);\quad 21^{l},813\,(B);\quad 21^{l},625\,(C);\quad 21^{l},875\,(D);$$

If we at once set aside A as being the widest of the mean valuation, there remain B, C, and D, of which B and D differ but little from each other. This leads us to reject C. Finally, we adopt D, or $21^{l},875$, because it was obtained directly from the relations between the units of length generally admitted in Ferrer's time, instead of being derived from astronomical valuations which in his days were not very exact.

If we carry 370 of these leagues (of $21^{l},875$ to a degree of Ferrer's equator) on the parallel of 15° latitude (of Ferrer's sphere), the arc thus obtained will be 17° 31'.[1]

The difference between this valuation and that of 18° is insignificant, especially if we take into consideration the little precision with which the starting meridian was determined. We thus see that Ferrer's calculation was sufficiently exact, and that his 370

[1] In calling x the length of arc of the equator of Ferrer, which is of the same angular value as the arc of 370 of

leagues on the parallel of 15° latitude in his sphere, intercepted about an arc of 18°.

Third.

Let us now find which is the meridian which, in our sphere, would cut the parallel of 15° at 370 of Ferrer's leagues west of the meridian of Fogo Island.

To that effect we must first know the value of Ferrer's league in our marine leagues of 20 to the degree of our equator.

According to Ferrer, the circumference of the earth was 252,000 stades.

But there were several kinds of stades. From Ferrer's references to certain Greek authors as authorities, it is evident, however, that he employs the stade used by Strabo, Eratosthenes, and Macrobius

Ferrer's leagues in the parallel of 15° latitude, we have the relation:

$$\frac{x}{370} = \frac{1}{\cos 15^\circ}, \text{ whence } x = \frac{370}{\cos 15^\circ}$$

$$\begin{aligned} \text{Log } 370 &= 2{,}5682017 \\ \text{Log cos } 15^\circ &= 9{,}9842438 \\ \hline \text{Log } x &= 2{,}5832579 \end{aligned}$$

$$x = 383^{1}{,}052.$$

The value of the arc in degrees, at the rate of $21^{1}{,}875$ to the degree is given by the relation:

$$\frac{383{,}052}{21{,}875} = 17^\circ\ 511 = 17^\circ\ 30'\ 39''\ 6.$$

in their estimates. This was the stade commonly used in Greece, that is, the Olympic, which at present is known to measure exactly $192^{m},27$, as we have already said.[1]

Ferrer's circumference of 252,000 stades × $192^{m},27$, is equivalent therefore to 48,452,040 metres, instead of 40,000,000 metres, which is the real value.

Ferrer's equatorial degree of 700 stades, $700^{st} \times 192^{m},27$, is, for the same reason, equivalent to 134,589 metres, instead of 111,111 metres, which is the value accepted now by all metrologists.

The relation of the circumference of the earth, such as Ferrer computed it to be, to the circumference of the globe as it is admitted to be, is consequently $\frac{48,452,040}{40,000,000} = 1,2113010$, or approximately, 1,211. That is, Ferrer increased the circumference of the earth by $\frac{211}{1000}$ of its real value; that is, approximately, by $\frac{1}{5}$.

As the arc of 1° of the equator of Ferrer's sphere was $21^{l},875$ (see above) of his own leagues, the arc 1° of the equator of the real sphere, as known to-

[1] *Supra*, note 97, where we give the measurement made of the stadium of Olympia, after it had been cleared in 1881 by the commission of German archæologists. As regards the fact that until at least the fifth century of our era the Greek scientists employed exclusively the Olympic stadium, see Boeckh, "Metrologische Untersuchungen," Berlin, 1838, 8vo, pp. 288-90, and particularly Th. Henri Martin's valuable critique of Letronne's "Recherches sur les fragments d'Heron," in the separate issue of the "Revue archéologique," Paris, 1851, 8vo, pp. 15, 20, 21, 32, and 112.

day, will be represented by a number of those leagues equal to $\frac{21,875}{1,2113010} = 18^{l},0598$ of Ferrer's leagues.

On the other hand, as the same arc of 1° on our equator is equivalent to 20 of our marine leagues, Ferrer's league is equal to $\frac{20}{18,0598} = 1^{l},1074$ marine leagues of 20 to the degree of our equator.

The 370 leagues of Ferrer, consequently, amount to $370 \times 1^{l},1074 = 409^{l},738$ marine leagues of 20 to the degree.

An arc of the parallel of 15° latitude, of a length equal to 370 of Ferrer's leagues, that is, equal to $409^{l},738$ of our marine leagues, corresponds on our actual sphere,[1] with an arc of the equator of the same angular value equal to $424^{l},192$.

That is, at the rate of 20 leagues to the degree, equal to $\frac{424,192}{20} = 21°21 = 21° - 12' - 3''6$.

The meridian required is, therefore, the one which cuts the parallel of 15° latitude in 21° 12′ longitude

[1] In calling x the length of the arc of the equator of the same angular value as the arc of $409^{l},738$ on the parallel of 15° latitude, we have the relation:

$$x = \frac{409,738}{\text{Cos } 15°}$$

$$\begin{aligned} \text{Log } 409^{l},738 &= 2,6125070 \\ \text{Log cos } 15° &= 9,9849438 \\ \hline \text{Log } x &= 2,6275632 \end{aligned}$$

$$x = 424^{l},192.$$

west, starting from the meridian of Fogo. That is, in taking 24° 25′ west (Greenwich) for the longitude of Fogo, the meridian which we are endeavouring to ascertain is 24° 25′ west + 21° 12′ west = 45° 37′ west (Greenwich).

Conclusions.

It follows from what precedes that to ascertain where the Line of Demarcation would have passed, according to Ferrer's theory, we must first adopt for our sphere the meridian of 18° west of the mean meridian of the Cape Verde Islands. This we have shown to pass on his sphere very nearly 370 of his leagues on the parallel of 15° latitude west of the starting meridian in Fogo. This meridian of 18° on his sphere will always be the same meridian of 18° on any other concentric sphere, whatever may be its dimensions; but with this difference: On any other sphere than Ferrer's, it will no longer pass 370 of Ferrer's leagues west of the starting meridian, on the parallel of 15° latitude. It will pass at a distance proportional to the dimensions of that other sphere. This meridian, on our actual sphere, would be the meridian of 42° 25′ longitude west (Greenwich), passing at a distance of $348^{l},138$ of 20 to the degree, west of the meridian of Fogo, on the parallel of 15° latitude.

This unexpected longitude of 42° 25′, which is nearly 8° further east than the longitude assigned to the Line of Demarcation in the Weimar planispheres (judging from its appearance on those maps), finds its explanation in the fact that Ferrer increased

the dimensions of the terrestrial globe by about $\frac{211}{1000}$, or, approximately, $\frac{1}{5}$ of its real value.[1]

Ferrer's meridian would cut the north coast of Brazil about 75 miles east of the entrance of Maranhão, and 10 miles west of the entrance of the western mouth of the Rio Paranahyba.

It would also cut that part of the Brazilian coast running westward from Cape Frio, at about 23 miles west of Cape Frio, or 40 miles east of the entrance of Rio de Janeiro, south of the laguna of Jucurutia, near the great laguna of Araruama.

But if the Spanish and Portuguese pilots had possessed the means of measuring exactly the distance of 370 of Ferrer's leagues westwards on the parallel of 15°, starting from Fogo; also, if when they had arrived at the extremity of that distance, they had been able besides to determine in a precise manner the longitude of that extremity, they would have ascertained that this longitude was the one which on our sphere is in 21° 12′ west of Fogo, 45° 37′ west of Greenwich, and not 42° 25′ according to Ferrer's theory.

This meridian of 45° 37′ would have cut the north coast of Brazil at Pirucaua point, situate between the Bay of Maracasumé in the east, and the Bay of Pirucaua in the west, about 23 miles west of the Bay of Tyryassu, 85 miles west of the entrance of Maranhão, and 120 miles east of the Para river, on the east coast of Marajo Island.

[1] Ferrer's league is equal to $1^l,1074$ of our marine leagues of 20 to the degree. This league is about $18^l,06$ to the degree of our actual equator.

It would have also cut the Brazilian coast extending west of Cape Frio, about 150 miles in the entrance of Rio de Janeiro, 8 miles west of the channel separating the island of St. Sebastian from the coast, and about 25 miles east of the entrance of Santos.

(102) Page 94. "John Cabot, the Discoverer of North America, and Sebastian his Son," London, B. F. Stevens, 1896, 8vo, pp. 296-308.

CHAPTER XIII.

(103) Page 98. "Discovery of North America," pp. 412-415. There is, however, a map added after 1512 to Corumberger's edition of Peter Martyr's first Decade, but it is a small, rough woodcut, omitting also the Line of Demarcation, and placing our Amazona, therein called "rio grande," in the longitude of the Canary islands! (*Op. cit.*, No. 94, pp. 474-477).

(104) Page 100. "Les Corte-Real et leurs voyages au Nouveau Monde," pp. 73-96, and the "Discovery of North America," pp. 422-25.

(105) Page 100. See the King's chart, Kunstmann, No. 2, etc.

(106) Page 102. Method which we adopted to ascertain the positions in Cantino's mappamundi, according to its geodetical data:

For the *latitude*. After determining the distances from the equator to the Tropic of Capricorn and to the Polar Circle, which, on the Cantino map are, respectively, 208^{mm} and 560^{mm}, or about $\frac{208}{560}$

$= \frac{24° 40'}{65° 20'}$ (or 8^{mm}, 4 for the length of each degree of latitude), we measured the distance in millimetres from the point to the equator, and divided that distance by 8, 4. The quotient gave the number of degrees of latitude.

For the *longitude*. The degree of latitude multiplied by the cosinus of 45° having shown the degree of longitude equal to 6^{mm}, the distance from the point to the meridian of Paris was measured in millimetres. In dividing that number by 6, the quotient was the number of degrees of longitude according to that meridian.

We then assumed that the cartographer who constructed Cantino's prototype gave $16\frac{2}{3}$ leagues to a degree on the equator, according to the measure generally adopted by the Portuguese pilots of the time.[1]

Judging from the difference in longitude between Cape San Roque and South Guinea, which is 55° in the Cantino map, instead of 45° as in reality, we may assume that in the opinion of its maker the radius of the globe was equal to five millions of metres instead of six.

We should also take in consideration that in the Cantino map the latitude of the tropics is 20° 40′ instead of 23° 27′.

The object of this technical explanation is simply to show that no reliance is to be placed upon the

[1] "La ragione perche io do 16 leghe é due terzi per ogni grado," says Vespuccius, in his letter of July 8, 1500 (Bandini, "Vita di Vespucci," p. 72).

metrology of that map, and that the figures which we have set forth in our *Corte Real*, should not be invoked, as has been done recently,[1] to determine the longitude of that meridian. We must be guided in that respect only by the geographical position of the Line in the Cantino map, which is fixed therein eastward from the Maranhão.[2]

CHAPTER XIV.

(107) Page 103. Navarrete, in his "Opúsculos," vol. i., p. 66, says that "hallábase en un Registro de copias de cédulas, provisiones, etc., de la Casa de la Contratacion desde 5 de febrero de 1515 hasta 6 de marzo de 1519."

(108) Page 103. "Suma de geographia que trata de todas las partidas y provincias del mundo: en especial de las indias, y trata largamente del arte del marear: Juntamente con la esphera en romance. . . ." Sevilla, 1519, folio; "Bibliot. Americ. Vetust.," No. 97, pp. 167; "Discovery of North America," pp. 502, 716.

(109) Page 104. It must be noted, however, that in the windrose added to the "Suma," the difference between two points of the compass seems to have been calculated on the basis of $17\frac{1}{2}$ leagues. But logic requires in the present discussion to adopt the

[1] London "Times," February 6, 1896, p. 8, and March 7 following, p. 6.

[2] That which shows that it is the Maranhão, and not the Marañon or Amazona, is the delineation of a large estuary west of the Line, and bearing the well-known inscription: "Todo este mar he de agua doce" (all that sea is fresh water).

data which Enciso himself explicitly sets forth for his computation of the circumference of the earth.

(110) Page 105. This is impossible. Enciso probably wrote 57° instead of 117°, and 950 leagues instead of 1,950.

(111) Page 105. Those 400 leagues of Enciso are equal to 443 of our leagues; but the real distance is 520 of our leagues of 20 to a degree.

(112) Page 105. Enciso makes the following statement: "Porque cada un grado es tassado en $16\frac{1}{2}$ leguas y un sesmo de camino todo el Mundo tiene en derredor 360 grados que montan 6,000 leguas" (As each degree is fixed at $16\frac{1}{2}$ leagues, and one-sixth in space [$16 + \frac{1}{2} + \frac{1}{6} = 16{,}666$], the circumference of the entire world [globe] is of 360 degrees, amounting to 6,000 leagues) [again $\frac{6{,}000}{360} =$ 16 leagues, 666 to the degree of Enciso's equator].

According to Enciso, who wrote in 1518, the value of an equatorial degree was, therefore, on his sphere, $16^{1}{,}666$.

We have shown that according to Ferrer, who wrote in 1494, the value of an equatorial degree, on his sphere, was $21^{1}{,}875$.

The probability is that the league, which is always a unit usual and fixed, was the same for Enciso and for Ferrer; that is, at the rate of 32 stades for one league. We shall therefore adopt the same value for the league of both cosmographers, and ascribe the difference in the valuations which they give to the equatorial degree only to their different valuations of the dimensions of the earth.

Let us ascertain the relation which the equatorial degree on the sphere of Enciso bears to the equatorial degree on our sphere.

According to that cosmographer, the circumference of the globe is 6,000 leagues; that is, at the rate of 32 stades per league, $6{,}000 \times 32 = 192{,}000$ stades. If we adopt for Enciso, at we did for Ferrer, the stade as being equal to 192 metres, 27, the circumference of Enciso's sphere is $192{,}000 \times 192{,}27 = 36{,}915{,}840$ metres, instead of 40,000,000 metres, which is the value admitted to-day.

The sphere of Enciso therefore bears to the real sphere the relation of $\frac{36{,}915{,}840}{40{,}000{,}000} = 0{,}923$, and his equatorial degree bears of course to the actual equatorial degree the same relation of 0,923.

The equatorial degree on Enciso's sphere being of $16^{l},666$, and the 0,923 of our actual equatorial degree, the latter will contain $\frac{16{,}666}{0{,}923} = 18^{l},057$ of Ferrer's and of Enciso's leagues.[1]

Our actual equatorial degree being equal to 20 of our leagues, it follows that Enciso's league is equal to $\frac{20}{18^{l},057} = 1^{l},1078$ of our marine leagues of 20 to a degree, or 1,108.[2]

In short, the circumference of Enciso's sphere is

[1] We found nearly the same result when discussing Ferrer's data, viz.: 18,0598 of his leagues to our equatorial degree; and it could not be otherwise.

[2] We found for Ferrer's league, $1^{l},1074$ marine league of 20 to a degree.

equal to the 0,923 of the circumference of the real sphere; that is, he makes the latter smaller by 0,077 than its real value.

Ferrer's sphere, as has been shown (*supra*, p. 186), is 1,211 of the circumference of the real sphere; that is, Ferrer makes the latter larger by 0,211 than its real value.

Consequently, Enciso commits an error of 0,077 less, Ferrer one of 0,211 in excess.

The difference shows, to a certain extent, the geodetical progress accomplished between 1495 and 1518.

Those figures can be verified as follows:

We have shown that the relation of the circumference of Ferrer's sphere to the circumference of our actual sphere is 1,211; now, the relation of the circumference of Ferrer's sphere to the circumference of the sphere of Enciso is $\frac{21,875}{16,666} = 1,313$;[1] consequently the relation of the circumference of the sphere of Enciso to the circumference of our actual sphere is $\frac{1,211}{1,313} = 0,923$.

We must also notice that Ferrer ascribes 7,875 leagues to the circumference of his sphere; whilst Enciso ascribes to his own sphere a circumference of 6,000 leagues. The relation between these two circumferences therefore is $\frac{7,875}{6,000} = 1,313$. But we

[1] This relation is that of the size of Ferrer's equatorial degree with the equatorial degree of Enciso, and is evidently the same as that of the circumference of Ferrer's sphere with the circumference of the sphere of Enciso.

have seen that the relation of Ferrer's circumference to the actual circumference is 1,211; consequently the relation of Enciso's circumference to the actual circumference is $\frac{1,211}{1,313} = 0,923$.

We propose now to determine the Line of Demarcation, according to Enciso.

Like Ferrer, Enciso places his dividing meridian 370 of his (and of Ferrer's) leagues west of Fogo, in the parallel of 15° latitude *on his sphere*.

On that parallel, an arc of 370 leagues has the same angular value as an arc of the equator *on the same sphere* of a length equal to $\frac{370}{\cos 15^\circ} = 383^l,052$.

This arc of the equator of $383^l,052$ will be equal, at the rate of $16^l,666 \ldots$ to a degree, to $\frac{383,052}{16,666}$ $= 22°, 985 = 22° 59' 06''$.

It follows that the dividing meridian *on Enciso's sphere*, passing 370 of his leagues west of Fogo on the parallel of 15°, will be the meridian of 22° 59′ west of Fogo, or 22° 59′ + 24° 25′ = 47° 24′ west of Greenwich, in taking 24° 25′ west of Greenwich for the meridian of Fogo Island.

Whatever may be the dimensions adopted for a sphere concentrical to Enciso's, the meridian of 47° 24′ west of Greenwich will always be the same, and the difference between the longitude of Fogo and that of the dividing line, as found by Enciso's data, will always be 22° 59′. But this difference in longitude will represent a distance, on the parallel

of 15°, which will vary proportionally with the dimensions of the sphere under consideration. We shall adopt therefore for our actual sphere, as a dividing meridian, the meridian of 47° 24′ west of Greenwich, which is the result of Enciso's determination, it being understood that this meridian passes *on our sphere* at a distance west of Fogo, different from that at which it passes west of the same Fogo *on Enciso's sphere*.

Let us see now at what distance it passes on our sphere west of Fogo, on the parallel of 15°.

An arc of 22° 59′ of *our equator* is equal to 22° 59′ × 20 = 22°,985 × 20 = 459^{l},7, at the rate of 20 leagues to a degree.

The arc of the same angular value (22° 59′) of the parallel of 15° of *our sphere*, is equal to 459^{l},7 × cos 15° = 444^{l},036 (leagues of 20 to a degree).

The dividing meridian of 47° 24′ west of Greenwich determined by Enciso, and which *on his sphere* passed at a distance of 370 of his leagues (370 × 1,108 = 409^{l},960 of 20 to a degree) will pass, consequently, *on our sphere*, at a distance of 444^{l},036 of 20 to a degree west of Fogo on the parallel of 15°.

On Ferrer's sphere, which was much larger than Enciso's, the 370 leagues of Ferrer and Enciso comprised only 18° on the parallel of 15°. These 18°, *on our sphere*, comprised 348^{l},138 marine leagues of 20 to a degree, on the parallel of 15°.

The Line of Demarcation of 47° 24′ west of Greenwich cut the north coast of Brazil in Salinas Bay, situate west of the island of Praia Grande. It passed about 5 miles west of the Atalaia lighthouse;

that is, about 35 miles east of the entrance of Rio Para, and about 180 miles west of the entrance of Rio Maranhão.

Having given the mathematical deductions from Enciso's geodetical data, and stated where, according to these data, the Line of Demarcation passed on his sphere, and where it passed on our own, we have now to examine his geographical statements as regards the position of the Line of Demarcation on his sphere. He says:

"El limite dedo comienza la particion esta 370 leguas al poniente de la isla del fuego, las cuales van à dar en la tierra de las Indias entre el Rio Marañon y la Mar Dulce" (The limit where the partition commences is 370 leagues west of Fogo Island, which terminate on the main land of the Indies, between the Rio Marañon and the Mar Dulce).

Elsewhere, he says:

"Desdel Cabo de Sancto Agostin fasta al Rio Marañon ay 300 leguas" (From Cape St. Augustine to the Rio Marañon there are 300 leagues).

If we ascribe to Enciso's league the length found by our preceding calculations, viz.: $1^{l},108$ (marine league of 20 to a degree), his 300 leagues are: $300 \times 1^{l},108 = 332^{l},4$ of our actual marine leagues of 20 to a degree.

If now we carry this distance of $332^{l},4$ on our admiralty charts, counting from Cape St. Augustine westwards, hugging the west coast of Brazil, as doubtless did the pilots in Enciso's time, we reach near the mouth of the Rio Para.

Elsewhere, Enciso says:

"Desde el Rio Marañon fasta al Rio que dizen la Mar Dulce, ay 25 leguas" (From the Rio Marañon to the river called Mar Dulce there are 25 leagues).

The 25 leagues of Enciso amount to $25 \times 1{,}108 = 27^{l},7$ of 20 to a degree. Carrying these $27^{l},7$ along the coast, starting from Cape Maguari, which is the western point of the entrance of the Rio Para, we reach the north of Mexiana Island, in the middle of the great opening of the Amazona, between the northern and the southern channels which lead into the river itself. If so, Enciso is right when he says: "Este limite esta cerca de la Mar Dulce" (that limit [*i.e.*, the Line of Demarcation] is near the Mar Dulce), provided he considers the mouth of the Para as forming part of the Mar Dulce.

The plan of the Line of Demarcation of 47° 24′ on Enciso's sphere, passes *on our sphere*, as we have said, $444^{l},036$ (of our leagues of 20 to a degree) west of Fogo, on the parallel of 15°.

But what is the meridian passing *on our sphere*, 370 of Enciso's leagues ($409^{l},960$ of our leagues of 20 to a degree) west of Fogo on the parallel of 15°?

The position of the meridian answering these requisites is independent of the results arrived at by Ferrer or by Enciso. It is always the meridian which we have determined in our discussion of Ferrer's results, and which is the meridian of 21° 13′ west of Fogo, or 24° 25′ + 21° 13′ = 45° 38′ west of Greenwich. This meridian cuts the north coast of Brazil, in Maracasumé Bay, about 35 miles of the entrance of the Rio Para, and about 180 miles west of the Maranhão.

To sum up:

Ferrer increased the circumference of the earth by $\frac{211}{1000}$ over its real value.

Enciso diminished the same circumference by $\frac{77}{1000}$ under its real value.

The league employed by Ferrer is the same as Enciso's, viz.: the league of 32 stades or of $1^{l},108$ (actual marine league of 20 to a degree). This league of 32 stades is of $18^{l},05$, to the degree of the equator, such as it is adopted to-day.

According to the dimensions which Ferrer ascribed to the earth, the dividing meridian lies 18° to the west of the meridian of Fogo, passing on Ferrer's sphere 370 of his leagues (=409,960 of our leagues of 20 to a degree) west of Fogo on the parallel of 15°, and *on our sphere* 348 marine leagues of 20 to a degree, west of Fogo, on the parallel of 15° (*supra*, p. 197).

According to the dimensions which Enciso ascribed to the earth, the dividing meridian lies 22° 59′ to the west of the meridian of Fogo, passing on Enciso's sphere 370 of his leagues (=409,960 of our leagues of 20 to a degree) west of Fogo on the parallel of 15°, and *on our sphere*, 444 marine leagues of 20 to a degree west of Fogo, on the parallel of 15° (*supra*, p. 197).

On the real sphere, the meridian passing 370 of Ferrer's and Enciso's leagues (=409,960 of our leagues) west of Fogo, on the parallel of 15°, would be the meridian which lies 21° 13′ west of Fogo.

The dividing meridian of Enciso (22° 59′ west of Fogo) cuts the north coast of Brazil 180 miles west of the Rio Marañon, and 35 miles east of the Rio Para.

CHAPTER XV.

(113) Page 110. "Descobrysteis ciertas islas e tierra firme que posysteis los nombres siguientes: Santa Maria de la Consolaçion e Rostro hermoso, e dende allé seguisteys la costa que se corre al Norueste, el Rio grande, que llamasteys *Santa Maria de la Mar dulce* con las islas questan a la boca de dicho rio, que se nombra *Marina tambulo*" ("Documentos ineditos de Indias," vol. xxx., pp. 535-537).

The name "Santa Maria de la Consolaçion" may come from the feast day of the Purification of the Virgin Mary, February 2, which in this case would be the date of the discovery of that cape, whatever its position may be in reality. The Pinzons set out from Spain in December, 1499, and returned to Palos, September 30, 1500, after having discovered not only Brazil and (one of ?) the mouths of the Amazona, but, as we now believe, also Yucatan, in July of that year, after sailing from Hispaniola.

Marina tambulo is evidently an Indian name. A curious coincidence is the fact reported by Dr. Crevaux, that the natives on the coast of Guiana call the sweet scented fruit of a certain passiflora in that region *Marie tambour*.

Marina tambulo appears in a map for the first time in Schöner's globe of 1520, in its longitude of 126°.

(114) Page 111. "Trovorono el mar de aqua dolce, et investigando dove queste aque veniva, trovó una bocha che usciva in mar. 15. lige cum grandissimo impeto, davanti de la qual in mar ne erano molte insule . . . el nome de questa provintia chiamano

Marina tambal" (Letter of Angelo Trevisan to Dominico Maripetro [Malipiero] in Venice, dated Ecija (?), December, 1501). It is the prototype of the account printed in the "Libretto" (1504) and in the "Paesi" (1507; "Bibliot. Americ. Vetust.," Nos. 32 and 48) as well as of the Ferrara MS. In the 1511 edition of the Decade, Peter Martyr d'Anghiera says that Mariatambal was a native name: "Prouintiam appellant indigene Mariatambal" (recto of f°. iiij).

(115) Page 111. It is the first time that this name occurs in a document or in a map. Two years afterwards Vincente Yañez Pinzon cited it in his deposition (March 21, 1513; "Doc. inedit," 2nd Series, 1892, vol. ii., p. 269) as follows: "halló la mar dulce . . . é asimismo descubrió esta provincia que se llama Parisura (*sic*)." His companion, Valdovinos, Sept. 19, 1515 (*op. cit.*, vol. viii., p. 146), gives that name to the large river itself: "dieron en un Rio grande anagazado al qual pusyeron por nombre paritura (*sic*) donde hallaron en la mar que salia del Ryo el agua dulce más de treynta leguas."

(116) Page 111. "Varia repere flumina, tum ingentia, tum parva et mediocria, preter cetera in unum incidere latitudinis adeo immense, ut incredible sit posse id in natura fieri. Octoginta milliarium amplius, aiunt, et flumen esse asseverant, non maris sinum, quod dulcium sit aquarum, quod fluat in oceanum, et insulis refertum sit . . . flumini est nomen patrium Maragnonus" ("Epist." DXXXII, December 18, 1513, in the Amsterdam edition, p. 291).

(117) Page 112. Oviedo ("Hist. General de las Indias," lib. xxiv., cap. 11, vol. ii., p. 213).

(118) Page 113. "El primero que descubrió el rio Marañon fué el piloto Viçente Yañez Pinzon . . él me dixo que con quatro caravelas pequeñas avia entrado en este rio quinçe ó veynte leguas el año de 1500 años . . . los saltearon en una provinçia que se llama *Mariatambal*, que es dentro de la costa del Marañon, dentro del qual hay muchas islas . . . desviado del rio y de la costa treynta leguas apartado de tierra, avia cogido agua dulçe en la mar alta, por causa de la fuerça é furia con que este rio entra en ella" (Oviedo, *loc. cit.*).

(119) Page 113. A well-known custom of navigators in those days was to name their geographical discoveries after the Saint on whose feast day they were made (see our "Discovery of North America," p. 335).

(120) Page 114. La Cosa's planisphere was drawn before the end of December, 1500, and Pinzon returned to Spain, September 30, of that year ("Discovery," pp. 412 and 679).

(121) Page 115. "Doc. inedit.," vol. i., p. 194.

(122) Page 116. "Este embocamiento, que tan señalada cosa hizo Dios en el mundo [el rio Marañon] se llamó un tiempo *Mar dulçe*" (Oviedo, lib. xxi., cap. 11, vol. ii., p. 123).

CHAPTER XVI.

(123) Page 120. The western estuary of the Amazona, at its greatest width, between Tijoca

Point on the continent, and the easternmost cape of Marayo Island (Point Maguari), is only about 40 miles.

(124) Page 121. "Octoginta milliarum amplius ajunt" ("Epist." DXXXII., p. 291).

(125) Page 121. "Lequas dicere audent triginta amplius latum" (Decade i., lib. ix., edit. of 1533, folio; f°. 21, B). The entire passage is wanting in the edition of 1511.

(126) Page 121. Oviedo, *ubi supra*.

(127) Page 121. "Aquel embocamiento haçe allá dentro dos braços prençipales, y al mas oriental llaman *rio de Navidad;* y el mas occidental es el que guarda el proprio nombre de Marañon, y es el mas prençipal" (Oviedo, lib. xxi., cap. ii., vol. ii., p. 123).

(128) Page 121. Even after the exploration of Orellana, cartographers depicted the mouth of the Amazona without noticing the Para. See the map of Bartolomé Olives, preserved at Pisa ("Discovery," p. 585).

(129) Page 122. The estuary of the Tocantins alone is 48 kilometres wide.

CHAPTER XVII.

(130) Page 124. The earliest delineation of that region is to be found in the Portuguese Cantino map, executed before November, 1502. There is, first, a river, denominated *Rio grande*, terminating with an extremely large estuary, dotted with islands, one of which is of considerable size; then on the

sea, facing it, we read: *Todo este mar he de agua doçe.* But the region is placed at a great distance from Cantino's Line of Demarcation and in the longitude of his island of Guadalupe!

(131) Page 125. "Cartographia Americana Vetustissima," Nos. 148, 159, 163, 177, 184, 185, 195, in our "Discovery," pp. 528-580. Wolfenbüttel B is of a date posterior to the Treaty of Badajoz, but its data are borrowed from a much older map. This is also the case with the Verrazzano and Maggiolo planispheres of 1527, as well as the portolani of Agnese.

(132) Page 126. In the Laurentiana and Ribeiro planispheres.

(133) Page 126. "El Rio de Marañon es muy grande y entran en él navios por agua dulce, y 20 leguas en la mar toman agua dulce" (Weimar Ribeiro).

(134) Page 127. "Le Rio Paranahyba de la province de Piauchy, forme sans doute un grand delta à son embouchure, étant divisé en six bras qui entourent des îles très basses, mais cette rivière, pas plus que le Rio Meary (Mearim) de la province de Maranhão, célèbre par son *mascaret* (le mouvement terrible de la marée), ne rend, à ce que je sais, la mer douce loin de son embouchure" (Humboldt, "Examen Critique," vol. v., p. 63, note).

(135) Page 127. De Montravel, "Revue Coloniale," No. of August, 1847, p. 410, and "Annales maritimes et coloniales," same date, pp. 170-172.

(136) Page 128. Called therein "Maralion."

(137) Page 129. "Regio autem ab eius fluminis occidente, Paricura dicitur."

(138) Page 130. We have just found that Mr. d'Avezac also came to this conclusion, but by other reasonings ("Les Voyages d'Améric Vespuce au compte de l'Espagne," Paris, 1858, 8vo, p. 180).

CHAPTER XVIII.

(139) Page 132. The Cantino map, *supra*, p. 102.

(140) Page 134. "Documentos inéditos de Indias," vol. i., p. 296.

(141) Page 134. *Ibidem.*

(142) Page 135. The first settlement, to our knowledge, is the town of Coro, built by Juan de Ampues in 1527: "Atraveso à la Costa de Coriana por el año de mil quinientos y veinte y siete, el dia de Santa Ana del mismo año de quinientos y veinte y siete, fundó una ciudad, a quien por esta circumstancia y ser en la provincia de Coriana intituló Santa Ana de Coro" (Oviedo y Baños, "Historia de la conquista y poblacion de Venezuela;" Madrid, 1723, small folio, cap. iii., p. 9).

(143) Page 136. The "Phisices compendium" of Pedro Margallo (Salmant., 1520, folio, "Bibliot. Americ. Vetust., Addit.," p. 77), "mostra el repartimiento entre Castilla y Portugal" (Navarrete, vol. iv., p. 348). Unfortunately, the only copy of that work which we ever could find is in Seville.

(144) Page 137. Navarrete, vol. iv., pp. 336-337.

(145) Page 137. "John Cabot, the Discoverer of North America, and Sebastian his Son," London, B. F. Stevens, Publisher, 1896, 8vo, pp. 296-308.

(146) Page 138. Those experts were not mem-

bers of the Junta, but astrologers (astronomers) and pilots, placed by the Crown at the disposal of its Spanish members (Navarrete, vol. iv., p. 331). They were Antonio de Alcaraz, Simon Tarragona, Sebastian Cabot, Diego Ribeiro, and the pilots of the Casa de Contratacion in 1524.

The Portuguese experts exhibited a globe on which the Demarcation Line was traced 21° 30′ west of the island of Sant Antonio; by our mode of calculating: 22° 6′ 36″.

(147) Page 138. "Tenemos de venir á lo que communmente usan los marineros ansi en Portugal como en Castilla, que dan á cada grado del cielo 17 leguas y media, é al primer rumbo despues del norte dan 18 y media, é á el nor nordeste dan 20. . . . Nos conformaremos con el Tolemo . . . el cual pone 62 millas e media á cada grado" ($17\frac{1}{2} \times 4 = 70$ milles ?). This league of $17\frac{1}{2}$ to a degree was stated by them to be the league commonly used by the Spanish and Portuguese seamen: "lo que communmente usan los marineros ansi en Portugal, como en Castilla" (Navarrete, vol. iv., p. 339, line 20).

(148) Page 138. According to their first two data, there would have been $17\frac{1}{2} \times 32' = 560$ stades to a degree, and 201,600 stades for the circumference.

(149) Page 138. Misled by Saigey (*op. cit.*, p. 61), we first based our calculations upon his assertion that Ptolemy used the Phileterian stade. Consequently, we increased the Olympic stade, without, however, adopting Saigey's estimate of $184^{m},8$ for the Olympic, as it is now known to be equal to $192^{m},27$. But a new study of Boeckh, Letronne, and T. H.

Martin convinced us that although both kinds of stades co-existed in Egypt in Ptolemy's time, only the Olympic was resorted to for *scientific* mensurations, and that Archimedes, Eratosthenes, Hipparchus, Strabo, Vitruvius, and Ptolemy himself must have used it to the exclusion of the Phileterian. Our computation of Ptolemy's stade is based therefore upon the present estimate of the Olympic, viz.: $192^{m},27$, as we did when discussing Ferrer's estimate.

(150) Page 138. "La dicha linea . . . habia de pasar al occidente de la isla de Sant Antonio, comenzándose desde allí la medida" ("Parecer" of 1524 in Navarrete, vol. iv., p. 344).

(151) Page 138. "Tenemos de situar la linea de la demarcation 370 leguas desde la isla de S. Antonio, à las cuales corresponden 22 grados, é cuasi 9 millas," or by our mode of calculating, $22° 08' 02''$. It is well to recollect that we have found by computations made on the basis of Enciso's data (*supra*, p. 196) that his 370 leagues west of Fogo amounted to $22° 59' 06''$ on the parallel of 15°. The Portuguese exhibited a globe on which the Demarcation Line was traced $21° 30'$ west of the island of Sant Antonio (Navarrete, vol. iv., doc. xxxvii., p. 345).

(152) Page 140. Meridian of Ternate = $127° 20'$ east of Greenwich ($127° 20' + 17° + 180°$).

CHAPTER XIX.

(153) Page 141. "La qual se devide en dos partes conforme à la capitulaçion que hizieron los

catholicos Reyes de España, y el Rey don Juan de Portugal en la villa de Tordesillas: Año de 1494."

(154) Page 142. In the remaining half of the planisphere of Nuño Garcia de Toreno, dated 1522, and preserved in the king's library at Turin ("Discovery," No. 144) the Line of Demarcation is marked with the legend: *Linea divisionis Castellanorum et Portugallensium.* Unfortunately we possess only the Asiatic regions. In it the line passes through the middle of *Camatra* (Sumatra), which corresponds with 98° longitude, Greenwich, on our maps, making it appear (if carried out in the New World) clear into the Pacific, south of Mexico.

(155) Page 142. See for this map, "Discovery of North America," No. 159, p. 538.

(156) Page 142. *Ibidem*, No. 163, p. 540.

(157) Page 142. *Ibidem*, No. 177, p. 557.

(158) Page 142. *Ibidem*, No. 185, p. 573.

(159) Page 142. *Ibidem*, No. 184, p. 569.

(160) Page 142. Thomassy, "Les Papes géographes," Paris, 1852, 8vo. No 11, pp. 115-118. We possess a tracing of that valuable map, but without its nomenclature, which we have endeavoured to obtain. Unfortunately the original is now framed, and hung up at such a height as to prevent its being studied. The custodians of the Vatican could not be induced to place it within reach.

(161) Page 142. See for this map, "Discovery of North America," No. 195, p. 580.

(162) Page 143. Three are stated to have been constructed by "Cosmographos de Su Magestad."

(163) Page 144. The following was one of the

methods which we tried to ascertain the longitude of the Line of Demarcation in Ribeiro's map :

The degree of latitude multiplied by the cosinus of 45° gives the degree of longitude equal to 4^{mm}. We measure the distance in millimetres from the point to a meridian ; then, dividing this number by the value of the degree of longitude in millimetres (viz. four millimetres), the quotient will be the number of degrees of longitude relatively to the chosen meridian. Greenwich is our starting meridian for the longitudes.

In applying the above rule to the Ribeiro Weimar map of 1529, we find, distance from the equator to the Tropic of Capricorn = 135 millimetres.

Distance from the equator to the Polar circle = 377^{mm}. Consequently, if the map extended as far as the pole, the distance from this point to the equator would be $135 + 377 = 512^{mm}$, representing 90° latitude. The degree of latitude, therefore, is equal to $\frac{512}{90} = 5^{mm},7$.

The mean degree of longitude is equal to the degree of latitude multiplied by the cosinus of the mean latitude (45°) ; that is to say, to 4^{mm}, 3. To obtain a greater precision, it would be necessary to ascertain the length in millimetres of the degree of longitude, multiply the degree of latitude ($5^{mm},7$) by the cosinus of the latitude of the point under consideration.

On the equator the degree of longitude is equal to the degree of latitude ($5^{mm},7$). If we wish to know the longitude of the dividing meridian, we

take on the equator the distance in millimetres from that meridian to the meridian of Fogo, and we find 133^{mm}. This number, divided by $5^{mm},7$, gives us the difference in the longitude between the dividing meridian and the meridian of Fogo, viz.: $\frac{133}{57} = 20° 20'$. The longitude of Fogo being $24° 25'$ west, we find for the longitude of the dividing meridian on said map of Ribeiro, $24° 25' + 20° 20' = 44° 45'$ west of Greenwich.

Unfortunately, Ribeiro's other data yield a very different result. For instance, he places the Line of Demarcation, on his map, 18° west of Cape St. Roch, which he inscribes in 5° south latitude. Now, on his sphere this meridian would cut the equator at a distance of $17^{l},5 \times 18 = 315$ leagues of $17^{l},5$ to the equatorial degree, west of the meridian of Cape St. Roch. These 315 leagues equal $315 \times 1,108 = 349$ leagues of 20 to the degree. If we carry *on our sphere* and on its equator, west of the meridian of Cape St. Roch, this distance of 349 leagues, it will intercept an arc of longitude equal to $\frac{349}{20} = 17° 45' = 17° 27'$. The meridian passing at the extremity of that distance will be the meridian we endeavour to ascertain, *on our sphere*, that is, $17° 27' + 35° 20' = 52° 47'$ west of Greenwich (that is $2° 47'$ west of the western mouth of the Amazona) instead of $44° 45'$ on his sphere, and about $52° 47'$ on our own, as results from his other data. This great difference shows that, as in the case of the Cantino map, no reliance is to be placed,

scientifically speaking, on the cartographical statements of the period.

We were constrained to fall back upon a sort of empirical method, by transferring Ribeiro's geographical delineations to a modern map; but here again, these data were so vague as to compel us to resort to guess work. Thus did we come to suppose that Ribeiro made his Line pass through the western mouth of the Amazona River, in about 49° 45′.

CHAPTER XX.

(164) Page 145. Navarrete, vol. iii., doc. vii., pp. 297, 300.

(165) Page 145. "Discovery of North America," chap. ii., pp. 263-267.

(166) Page 145. *Ibidem*, p. 734.

(167) Page 146. *Ibidem*, pp. 631-633.

(168) Page 147. The nomenclature complete is as follows:

From	Cape St. Augustine	50 leagues
to	Cape Primero	
From	Cape Primero	20 leagues
to	Cape del Plaçél	
From	Cape del Plaçél	30 leagues
to	Bahia de Sanct Rafael	
„	Bahia de Tortuga	
„	Rio de Sanct Miguel	
From	Rio de Sanct Miguel	55 leagues
to	Capo del Corço	
„	Bahia de Arrecifes	

From	Rio de Sanct Miguel	55 leagues
to	Cape Blanco	
From	Cape Blanco	40 leagues
to	El Aguada	
„	Punta Primeira	
„	Golfo de Negros	
„	Playa del Plaçél	
„	Playa de las Pesquerías	
„	Punta del Palmar	
From	Punta del Palmar	80 leagues
to	Rio del Plaçél	
„	Tierra de Humos	
„	Bahia de Sanct Vincente	
„	Cape del Hueste	
„	Punta de Allende	
„	Punta de Corrientes	
„	Punta de Humos	
From	Punta de Humos	30 leagues
to	Cape de Corrientes	
From	Cape de Corrientes	20 leagues
to	Rio de Naubor	
„	Rio Segundo	
„	Rio de Johan de Lisbona	
„	Bahia de Todos Sanctos	
From	Bahia de Todos Sanctos	12 or 13 leagues
to	Cape de los Esclavos	
From	Cape de los Esclavos	20 leagues
to	Rio de Navidad	
„	Rio Marañon	
„	Rio de los Esclavos	

At first sight this enumeration may be interpreted as follows :

Cape de los Esclavos = Taipu point.
Rio de Navidad = Para river.
Rio Marañon = western branch of Amazona.
Rio de los Esclavos = Araguary river.

Unfortunately, the distance between the two extreme points (48° 5′ — 49° 55′) amounts to much more than 20 leagues, even of leagues measuring only $17\frac{1}{2}$ to an equatorial degree.

(169) Page 148. "Este Cabo de los Esclavos está en la punta de la boca del rio Marañon . . . su entrada en la mar no es un solo braço, como se dirá quando en adelante se tracte del viaje que por él hizo Francisco de Orellana . . . entran las aguas de aqueste rio con mucho ímpetu en la mar, y dentro della, diezó doçe leguas, se coje deste rio agua dulçe; é aquel embocamiento hace allá dentro dos braços prençipales, y al mas oriental llaman rio de *Navidad;* y el mas oçcidental es el que guarda el proprio nombre de *Marañon* . . . Este rio es cosa muy notable y señalada en la pintura de la cosmographia por sus grandeças . . . desde el Cabo de Sanct Augustin . . . hasta llegar al embocamiento y atravessarle, al rio Marañon hay tresçientas cinqùenta y ocho leguas, poco mas ó menos. . . . Este embocamiento, que tan señalada cosa hizo Dios en el mundo, se llamó un tiempo Mar Dulçe." Oviedo, lib. xxi., cap. iii., vol. ii., p. 123. The description of Orellana's voyage (*op. cit.*, vol. iii., pp. 382-390 and 542-572) does not contain technical details which could be of use in the present inquiry.

(170) Page 149. "Desde el Cabo de Palmar á

la línia de la demarçaçion que tiene Castilla con Portugal, viniendo al Occidente la costa abaxo, hay ochenta leguas: la cual línia passa de Norte al Sur, por la punta que llaman de *Fumós* ó *Humos* en la Tierra-Firme, hasta nuestro polo ártico, y responde en la parte austral haçia el antártico, en el Cabo de Buen Abrigo." Oviedo, "Historia General," lib. xxi., cap. iii., vol. ii., p. 122. As to the Line at the south, its location, according to Oviedo, is about 6° more to the eastward than in the maps of Ribeiro.

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